

Bahaaeddin Alareeni  
Allam Hamdan *Editors*

# Innovation of Businesses, and Digitalization during Covid-19 Pandemic

Proceedings of The International  
Conference on Business and  
Technology (ICBT 2021)

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Editors

# Innovation of Businesses, and Digitalization during Covid-19 Pandemic

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on Business and Technology (ICBT 2021)

 Springer



*Editors*

Bahaaeddin Alareeni  
Middle East Technical University,  
Northern Cyprus Campus, KKTC,  
via Mersin 10, Kalkanlı, Güzelyurt, Turkey

Allam Hamdan  
College of Business of Finance  
Ahlia University  
Manama, Bahrain

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# Foreword

I am delighted to write this foreword for The International Conference on Business and Technology (ICBT 2021) proceedings. I deeply believe in the role of such a conference and other similar scientific forums in bringing together leading academicians, scholars, and researchers to share their knowledge and new ideas as well as to discuss current developments in the fields of economics, business, and technology. ICBT 2021 provides a valuable window on the implementation of technologies such as artificial intelligence, IoT, and innovation in business development. For two days, a large number of distinguished researchers and guest speakers discussed many contemporary issues in business and technology around the world. It is a great privilege for the College of Business and Economics at Palestine Technical University-Kadoorie, Palestine, to co-publish this book for the sake of promoting excellent and cutting-edge research by scholars from around the globe. I have a strong faith that this book will be of great benefit for many parties, especially those aspiring to develop buoyant strategies that will lead to positive impact on any future endeavors. Finally, I hope that the ICBT'21 continues as a destination for researchers, postgraduate students, and industrial professionals.

Khalid Sweis

# Preface

The present business environment has been tumultuous due to the emerging new challenges resulting from innovative development and disruptive technology. Consumer demands for innovative products and services have urged business fraternity to be responsive and resilience in combating those new requirements.

The Fourth Industrial Revolution is characterized by the combination of physical and digital technologies, such as analytics, artificial intelligence, cognitive computing, machine learnings, and the Internet of Things (IoT). This would certainly impact the company's business direction, the future industries, the customers, the employees, and the society at large. The advancing technologies are bringing about social changes and economic development. As such, organizations are required to adapt to the new environment and strengthen their strategies despite the risk and uncertainty in the environment. New business integration strategies must be leveraged to ensure companies continue to sustain.

To anticipate the rapid change, education is set forth to be more innovative in offering the future ready curriculum. As such, education organizations and scholars are expected to be malleable and creative in designing new curriculum that embrace new technologies, integrating strong entrepreneurship values, fostering positive values and socio-emotional skills throughout the curriculum in order to produce quality and competent future human capitals that are ready to serve the future industries.

The integration between technology and business should be well managed so to provide a wide range of high-quality and competitive products and services in societies and countries. Therefore, the objective of this book proceedings is to conduct a review, examine, analysis, and discussion relating to the fields of business and technologies and their opportunities and challenges. We attempt to address a range of topics in the fields of technology, entrepreneurship, business administration, accounting, economics that can contribute to business development in countries, such as learning machines, artificial intelligence, big data, deep learning, game-based learning, management information system, accounting information system, knowledge management, entrepreneurship and social enterprise, corporate social responsibility and sustainability, business policy and strategic management,

international management and organizations, organizational behavior and HRM, operations management and logistics research, controversial issues in management and organizations, turnaround, corporate entrepreneurship, and innovation, legal issues, business ethics, and firm governance, managerial accounting and firm financial affairs, non-traditional research, and creative methodologies.

This book constitutes the refereed proceedings of the International Conference on Business and Technology (ICBT 2021) organized by EuroMid Academy of Business & Technology (EMABT), held in Istanbul, between 06 and 07 November 2021. The ICBT 2021 partners and supporters were: Universiti Malaysia Kelantan–Malaysia; National University of Life and Environmental Sciences of Ukraine–Ukraine; ARCIF Analytics; E-MAREFA–Jordan; Palestine Technical University–Kadoorie, Palestine; and the Palestinian Community Association For Ph.D. Holders in the Public Service, Palestine.

In response to the call for papers for ICBT 2021, 485 papers were submitted for presentation and inclusion in the proceedings of the conference. After a careful blind-refereeing process, 292 papers were selected for inclusion in the conference proceedings from 40 countries. Each of these chapters was evaluated through an editorial board, and each chapter was passed through a double-blind peer-review process.

These chapters are reflecting quality research contributing theoretical and practical implications, for those who wise to apply the technology within any business sector. It is our hope that the contribution of this book will be of the academic level which even decision-makers in the various economic and executive levels will get to appreciate.

Finally, we express our sincere thanks to the plenary speakers; Prof. Carolyn Strong, Editor in-Chief, Journal of Strategic Marketing from Cardiff University-UK; Prof. Khaled Hussainey, Co-Editor in-Chief, Journal of Financial Reporting and Accounting, from University of Portsmouth-UK; Prof. Timothy Mescon, Executive VP and Chief Officer-Europe, Middle East and Africa at AACSB International AACSB International–USA; Prof. Roselina Ahmad Saufi from Universiti Malaysia Kelantan–Malaysia; Prof. Munira Aminova, Experienced Higher Education management leader with a demonstrated history of working in the research industry, from United Business Institutes-Belgium; Prof. Mohammad Kabir Hassan, Editor in-Chief, International Journal of Islamic and Middle Eastern Finance and Management, University of New Orleans-USA; and Prof. Derar Eleyan, President Assistant of Palestine Technical University Kadoorie-Palestine.

Bahaeddin Alareeni  
Allam Hamdan

# Contents

|  |            |
|--|------------|
| <b>Innovation of Islamic Economics, Finance and Marketing</b>  |            |
| <b>Exploring Customer Awareness and Experience in Banks. A Case Study of UK Commercial vs Islamic Bank . . . . .</b>                             | <b>3</b>   |
| Derar Eleyan, Denis Hyams-Ssekasi, and Nafieh Assaf  |            |
| <b>Investigating the Parameters Influencing Islamic Banks Financial Performance: Evidence from Five Southeast Asian Countries . . . . .</b>      | <b>29</b>  |
| Fahd Al-Shaghdari, Tahani Ali Hakami, Barjoyai Bardai, and Abdulmajid Obaid Hasan Saleh  |            |
| <b>The Commitment of Waqf Institutions to Apply the Governance Principles and the Factors Affecting Them in Saudi Arabia . . . . .</b>           | <b>51</b>  |
| Omar Farhan and Aznan Hasan  |            |
| <b>Enhancing Socio-Economic Potential of Zakat Through Donation-Based Crowdfunding Model in Bangladesh . . . . .</b>                             | <b>75</b>  |
| Asif Adnan, Habeebullah Zakariyah, Sadman Rahik, and Abdul Mazed   |            |
| <b>Contemporary Developments in Waqf Beneficiaries—A Case Study of the Awqaf of the United Arab Emirates . . . . .</b>                           | <b>97</b>  |
| Sulaiman Haroon Yaqoob Arab, Habeebullah Zakariyah, and Abdulrahman Abdullatif Mohammad Abdullatif   |            |
| <b>Exploring the Potential of Using the Zakat Fund in Structuring Islamic Micro Takaful . . . . .</b>  | <b>121</b> |
| Habeebullah Zakariyah, Ahmad Abdulla O. M. Al-Own, and Altaf Ahmad   |            |
| <b>The Extent of Kuwaiti Islamic Banks Restrict to the Use of Islamic Financing Tools in Their Financial Operations: A Field Study . . . . .</b> | <b>133</b> |
| Osama Al-Rashidi, Habeebullah Zakariyah, Ashurov Sharofiddin, and Azman Mohd Noor  |            |

|  |            |
|--|------------|
| <b>What Can Waqf Organisations Learn from Non-profit Organisations on Accountability? A Proposal for Social Impact Measurement. . . . .</b>  | <b>151</b> |
| Nor Syahirah Zain and Rusni Hassan   |            |
| <b>Proposing a Waqf Based Ijarah Smart Sukuk Model for Development of Waqf Properties . . . . .</b>  | <b>167</b> |
| Mohammad Bilal Khan, Ibadurrehman Patel, Shaiq Ahmad Ghafoorzai, Damkar Mohammad Shehbaz, Rusni Hassan, and Jawwad Ali   |            |
| <b>The Practice of Islamic Bank in Zakat Distribution: The Case of Malaysia . . . . .</b>  | <b>183</b> |
| Nurul 'Iffah M. A. Zaaba and Rusni Hassan  |            |
| <b>The Legal Framework of Conversion from Development Financial Institution to Islamic Development Financial Institution in Malaysia Under Development Financial Institutions Act 2002 . . . . .</b> | <b>195</b> |
| Azlin Suzana Salim and Rusni Hassan  |            |
| <b>Deepening Financial Inclusion in Nigeria Through Islamic Financial Offerings . . . . .</b>  | <b>211</b> |
| Tesleem Olajuwon Isa Akosile and Nor Razinah Mohd Zain   |            |
| <b>Islamic Estate Planning (IEP) in Malaysia: The Opportunities for Islamic Banks . . . . .</b>  | <b>223</b> |
| Rusni Hassan and Nurul 'Iffah M. A. Zaaba  |            |
| <b>Waqf Education Participation Among Employees' of Higher Learning Institutions: A Conceptual Framework . . . . .</b>   | <b>231</b> |
| Mohd Nor Hakim Yusoff, Mohd Rushdan Yasoa, Zul Karami Che Musa, Siti Fariha Muhamad, Siti Afiqah Zainudin, Noorul Azwin Nasir, and Tahirah Abdullah  |            |
| <b>Digitalization of Economy and Public Administration</b>   |            |
| <b>National Models of Digitalization of Economy of the USA, the UK and the EU-Countries . . . . .</b>  | <b>241</b> |
| Nadiia P. Reznik, Kateryna A. Alekseieva, Anatolii A. Ostapchuk, Vitalii V. Lutsiak, and Vadym M. Kondratyuk   |            |
| <b>Digital Transformation of Malaysian Small and Medium-Sized Enterprises: A Review and Research Direction . . . . .</b>   | <b>255</b> |
| Mohamad Yusman Ammeran, Shaista Noor, and Mohar Yusof  |            |
| <b>An Accelerating Bangladesh and an Emerging India—Some Selected Economic Comparatives . . . . .</b>  | <b>279</b> |
| Hafizur Rahman   |            |

**The Central Bank Digital Currency in Malaysia: A Literature Review** . . . . . 307  
 Normi Sham Awang Abu Bakar, Norzariyah Yahya, Irni Eliana Khairuddin, Ahmad Firdaus Zainal Abidin, Jasni Mohamad Zain, Norbik Bashah Idris, and Engku Rabiah Adawiah Engku Ali

**Strategic Vectors of Sustainable Development of Ukraine’s Economy in the Context of World Economic Dominants** . . . . . 319  
 Liudmyla Kozak, Olesia Fedoruk, and Tetiana Zaplitna

**Investigating Economic Opportunities Based on Strategic Economic Sectors: Applying Input–Output and Interregional Input–Output Models** . . . . . 339  
 Sofyan Syahnur, Taufiq C. Dawood, and Yossi Diantimala

**A Comparative Study of Traditional Bank A and Digital Bank B from an Organizational Innovation Perspective** . . . . . 357  
 Easwaramoorthy Rangaswamy, Naresh Nadipilli, and Nishad Nawaz

**Technopreneur and Digital Economy as a Driving Force for the Economic Development in Palestine** . . . . . 377  
 Ghassan Shahin and Mervat Sharabati-Shahin

**Feasibility of Central Bank Digital Currency for Blockchain-Based Zakat in Indonesia** . . . . . 387  
 Zulfikri Zulfikri, Auwal Adam Sa’ad, Salina Kassim, and Anwar Hassan Abdullah Othman

**Factors Influencing the Consumer Adoption of Digital Banking Services During the Covid-19 Pandemic in Vietnam** . . . . . 397  
 Duc Tien Ngo, Thu Ha Phung, and Tuan Vu Chu

**To Tax or not to Tax Sin Goods: That’s the Question for Emerging Economies** . . . . . 411  
 James Manuel Pérez-Morón

**The Impact of Digital Banking on the Bank Operation and Financial Performance** . . . . . 421  
 Amal Abdulla Isa, Allam Hamdan, and Bahaaeddin Alareeni

**The Determinants of Selecting Public Practice Accountants as Business Advisors Among Small Medium Enterprises: A Conceptual Framework** . . . . . 431  
 Emy Filzah Binti Zulkifli and Mohd Nor Hakimin Bin Yusoff

**Economic Vulnerability, Orientations and Performance: a study among Micro-enterprises in Kelantan, Malaysia** . . . . . 445  
 Syed Ali Fazal, Noor Raihani Zainol, Wan Nurulasiah Wan Mustapa, Abdullah Al Mamun, Anas A. Salameh, and Mohd Zulkifli Muhammad

**The Impact of Minimum Wage on Economic Growth: Empirical Analysis on Developed and Developing Countries . . . . . 463**  
 Nurza Mohamed Yusoff, Nurnaddia Nordin, and Nurhaiza Nordin

**Assessing the Spillovers Effect of Infrastructure and Innovation on Economic Growth . . . . . 473**  
 Nurnaddia Nordin, Nurhaiza Nordin, Nur Ilyana Amiiraa Nordin, and Nur Faiz Nordin

**The Impact of Political Stability and Macroeconomic Variables on Foreign Direct Investment in Turkey . . . . . 485**  
 Mohammad Khudari, Noraina Mazuin Sapuan, and Mohammed Ammeen Fadhil

**Housewives Thrive in Informal Economy: Opportunities, Challenges, and Prospects . . . . . 499**  
 Siti Nahdia Mohd Hamidi, Dzulkifli Mukhtar, Yasmin Adjril, and Elok Damayanti

**Study on the Dilemma and Countermeasures of Rural Revitalization in Deeply Poor Mountainous Areas of China . . . . . 511**  
 Li Bin, Nooraziah Ahmad, and M. Darliana

**Influence of Digitalisation upon Jobs and Working Conditions: Towards Policy Response . . . . . 529**  
 Sharija Che Shaari and Sharifah Rahama Amirul

**Foreign Agricultural Markets: State and Challenges in Sustainable Development . . . . . 545**  
 Nataliia Mazur, Vadym Tkachuk, Nataliia Sulima, Ivan Semenets, Andriy Nikolashyn, and Alona Zahorodnia

**Business Management, HR, Business Success and the Role of Technology**

**Factors Influencing Mobile Payment Adoption and Its Role in Promoting Financial Inclusion: An Integrated Reflective Model with Theory of Planned Behavior . . . . . 563**  
 Mousa Ajouz, Faeyz Abuamria, and Jihad Hammad

**The Impact of Green Human Resource Management Practices with Sustainable and Operational Performance: A Conceptual Model . . . . . 583**  
 Ahmed Zaid and Ayham Jaaron

**Mindfulness Research: A Bibliometric Analysis . . . . . 611**  
 Muhammad Shoaib Saleem, Ahmad Shahrul Nizam Isha, Yuzana Mohd Yusop, Maheen Iqbal Awan, and Gehad Mohammed Ahmed Najji



**The Impact of Strategic Human Resources Management Practices on Firm Performance: The Mediating Role of Supply Chain Management** . . . . . 633  
 Waleed Ahmad, Ahmed Zaid, and Mohammad Sleimi

**Research of Directions of Effective Management of Natural Resources in Ukraine** . . . . . 657  
 Fedun Igor, Budziak Olha, Budziak Vasyl, Sudarenko Olena, Valinkevych Nataliia, and Tyshchenko Oleksandr

**The Mediating Role of Open Innovation Mindset on the Relationship Between Human Resource Management and Knowledge Management Toward Innovation Performance in the Jordanian SMEs** . . . . . 671  
 Ahmed Abdulaal and Norfarah Nordin

**Attribution of Family Business-Based in Cultural Heritage Management in Malaysia** . . . . . 683  
 Noor Aimran Samsudin and Zatul Iffah Mohd Fuza

**An Exploratory Study on the Training Provided by HIE to the CBT Providers at Kg Sayap, Kota Belud Sabah, Malaysia.** . . . . . 699  
 Caroline Geetha, Rosle Mohidin, Lim Thien Sang, Tini Maizura Mohtar, Kamarul Mizal Marzuki, Azaze-Azizi Abdul Adis, and Raman Noordin

**Formulating Physical Exterior Design Factors in Creating Exciting Retail Stores in Malaysia** . . . . . 709  
 Mohd Azri Mohd Jain Noordin, Mohammad Rusdi Mohd Nasir, Ismi Luqman Hamadi Ibrahim, Muhammad Rizal Khairuddin, and Azizi Bahauddin

**Education Management, Technology, Smart Universities and Covid-19 Impact**

**Technological Entrepreneurship for University Research Outcomes** . . . . . 719  
 Mohd Zulkifli Muhammad, Tamrin Amboala, Dzulkifli Mukhtar, Mahathir Muhamad, Muhammad Naqib Mat Yunoh, Mohd Fahmi Ghazali, and Abd Aziz Mat Hassan

**The Role of Information Technologies in Access to Rural Tourism Education** . . . . . 739  
 Tetyana Kalna-Dubinyuk, Anna Zbarska, Viktoriia Ovadenko, Olena Barylovyh, Violeta Heraimovych, and Nadiia Reznik

**Socio-Economic Processes Functioning and Innovation Education Development** . . . . . 749  
 Reznik Nadiia, Novykova Innola, Linovytska Olesya, Nykytiuk Oleksandr, Kolenko Yulia, and Holovnia Yulia

|   |     |
|---|-----|
| <b>A Conceptual Model for Implementing Gamification in Education and Its Impact on Academic Performance</b> . . . . .   | 765 |
| Omar Hasan Salah and Qadri Kamal Alzaghal   |     |
| <b>Continuance Intention, Educational System Quality, Instructor Quality and User Satisfaction on Perceived Impact on Learning</b> . . . . .  | 777 |
| Dyah Sugandini, Garaika, Yuni Istanto, and Rahajeng Arundati  |     |
| <b>Group Leader’s Conflict-Handling Style in the Palestinian Universities Students – Southern West Bank</b> . . . . .   | 785 |
| Marwan Said Jaloud  |     |
| <b>The Successful Factors of Online Learning for Malaysia Higher Education Students: Smart PLS-SEM Analysis</b> . . . . .   | 803 |
| Nurhaiza Nordin, Nur Naddia Nordin, Nur Ilyana Amiiraa Nordin, and Nur Faiz Nordin  |     |
| <b>Experience is the Best Teacher: Apprenticeship Based Learning in Entrepreneur Development</b> . . . . .  | 817 |
| Muhammad Fahimi Sofian, Dzulkifli Mukhtar, Muhammad Ikhsan Setiawan, and Haslinda Ramli   |     |
| <b>Management Practice in Stimulating Safety Culture: A Study at Malaysian Education Sector</b> . . . . .   | 827 |
| Nor Kamilah Makhtar, Ahmad Rasdan Ismail, Balakrishnan Parasuraman, Mohd Nazri Zakaria, Jaswardi Anwar Md Yaacob, and Zikri Awang   |     |
| <b>Enhancing Graduate Student Entrepreneurial Intention: A Designed Workshop Based on Exploratory Factor Analysis</b> . . . . .   | 839 |
| Takumi Ohashi, Haruna Kusu, Mai Inoue, Hikaru Tsukagoshi, Ryuta Takeda, and Miki Saijo  |     |
| <b>Perceptions of the Stakeholders on Work Readiness Among Graduates from Higher Education Institutions in Malaysia</b> . . . . .   | 857 |
| Khairul Azhar Mat Daud, Ena Bhattacharyya, Nik Zulkarnaen Khidzir, Balakrishnan Parasuraman, K. S. Savita, Pasupuleti Visweswara Rao, Jayaraj Vijaya Kumaran, Nik Muhammad Sabri Nik Hassan, and Zaty Azman |     |
| <b>A Literature Review on Mobile Augmented Reality in Education</b> . . . . .   | 875 |
| Yus Amira Mohd Yusuf, Ismahafezi Ismail, Wan Mohd Amir Fazamin Wan Hamzah, Mat Atar Mat Amin, and Mohd Azhar M. Arsad   |     |
| <b>Student Perception on Knowledge Management: Effectiveness of Online Learning During the Pandemic</b> . . . . .   | 889 |
| Sk Mamun Mostofa, Md. Uzzal Hossain, Roslina Othman, Khandakar Kamrul Hasan, and Muhammad Khalilur Rahman   |     |

**Towards a Conceptual Framework to Mitigate Dropout Risk in Open and Distance Learning (ODL) in Higher Education Institutions . . . . .** 907  
 Nora’ayu Ahmad Uzir, Irni Eliana Khairuddin,  
 Muhamad Khairulnizam Zaini,  
 and Muhammad Abdul Aziz Nur Izzuddin Izham

**The Adoption of Augmented Reality Technology in e-learning: Case of a Mobile Application During Covid-19 . . . . .** 915  
 Eman Daraghmi

**Predicting Saving Intention and Behavior Among University Students Using Partial Least Square Structural Equation Modelling . . . . .** 937  
 Ng Xin Rhu, Chong Tiang Yian, Noor Raihani Zainol, Tanvir Abi,  
 Abdullah Al Mamun, and Anas A. Salameh

**The Importance and Evaluation of Resilience Leadership Capability in Managing University: An Understanding . . . . .** 961  
 I. Noor Azizi, A. S. Roselina, P. P. Yukthamarani, and W. A. Wan Azlee

**Teachers’ Acceptance and Readiness in Using Google Classroom in Secondary Schools in Malaysia . . . . .** 967  
 Nor Masharah Husain, Nur Farah Hana Musa,  
 and Muhamad Hariz Muhamad Adnan

**Improving Financial Management Literacy Among Undergraduate Students in East Coast Malaysia . . . . .** 979  
 Noorul Azwin Md Nasir, Siti Afiqah Zainuddin, Siti Fariha Muhamad,  
 Mohd Rushdan Yasoas’, Tahirah Abdullah, Nadzirah Mohd Said,  
 and Mohd Nor Hakimin Yusoff

**The Use of Facebook and Technology in E-Learning Process . . . . .** 995  
 Abdulsadek Hassan

**E-Learning and Understanding of Accounting During Covid-19 Pandemic: Literature Review . . . . .** 1009  
 Amal Abdullah Isa, Fatima Jamal AlYaqoot, Tahera Sayed Ahmed,  
 Yara Tareq AlArabi, Allam Hamdan, and Bahaeddin Alareeni

**The Causation of Online Game Addiction Among University Student . . . . .** 1025  
 Mahathir Muhamad, Mohd Zulkifli Muhammad,  
 Muhammad Naqib Mat Yunoh, Zul Karami Che Musa,  
 Abd Aziz Mat Hassan, Ahmad Ridhuwan Abdullah, and Fatihah Mohd

**Entrepreneurship Education on Entrepreneurial Intention Among University Students in Malaysia . . . . .** 1035  
 Choy Kah Yung, Abdullah Al Mamun, and Anas A. Salamah

# **Innovation of Islamic Economics, Finance and Marketing**

# Exploring Customer Awareness and Experience in Banks. A Case Study of UK Commercial vs Islamic Bank



Derar Eleyan, Denis Hyams-Ssekasi, and Nafieh Assaf

**Abstract** This empirical study aims to examine the customer awareness and experience in both commercial and Islamic banks in the UK. It pays attention to the quality of services and the available support given to the customers. Banks pride in their financial services and support for customers. The banks' mantra is about treating customers as priced assets and providing them with all the necessary support and guidance. Undoubtedly, the customers' awareness of what the banks offer to them in terms of money safety, transfers, loans and interest rates are very important. The study utilises a questionnaire and focus group of 18 respondents with customers who use both banks to gain an understanding of their experiences. Evidence suggests that there is a general understanding of the banks' services and commercial banks in particular expose their services more widely using various communication channels. The study found that some customers are aware of the specific charges and the interest rates. However, some were unaware of the services offered by the Islamic banks in relation to mortgage and interest rates and this had impact on customers' satisfaction and loyalty. The study concludes that both commercial and Islamic banks need to do more to increase their customers services provisions in order to attract and retain existing customers. Offering customers and making them aware of a range of products and services tailored to their needs is way forward to acquire new and to increase customer retention.

**Keywords** Customer experience · Satisfaction · Loyalty · Service charges · Islamic bank · Commercial bank · Quality of service

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D. Eleyan (✉)

Applied Computing Department, Palestine Technical University, PO. Box 7, Tulkarm, Palestine  
e-mail: [d.eleyan@ptuk.edu.ps](mailto:d.eleyan@ptuk.edu.ps)

Centre for Islamic Finance, University of Bolton, Bolton, UK

D. Hyams-Ssekasi

Business School, University of Bolton, Bolton, UK

N. Assaf

Accounting Information Systems Department, Palestine Technical University Kadoorie,  
PO. Box 7, Tulkarm, Palestine

# 1 Introduction

Banking is one of the main flourishing sectors in economy and attract special attentions from both researchers and investors. There are different types of banking in the banking sector; cooperative, commercial, retail, investment, and Islamic. The aim of this research is to explore the variance of customer experience and awareness of the contemporary commercial bank and Islamic bank in UK. Consideration is given to specific awareness in relation to banking charges and quality of services available to support and retain customers. Furthermore, attention is also given to the main factors that formulate the customer experience in these banks. It unravels the main benefits and the issues customers encounter in these banks. The findings indicate that main benefits for people of banking according to the BBA (British Banking Association 2013) are keep money safe, pay for goods, services, transfer money, help people own their homes through personal loans and mortgages. According to (<https://thebanks.eu/banks-by-country/United-Kingdom>), there are 330 banks are currently operating in the UK and 52 building societies, 15 of them are Islamic banks, they focus on corporate banking, housing financing and corporate and investment banking. The Islamic banks are providing product and services compliant with sharia law. Three of them are British origin and twelve are branches from Arab or Islamic countries. The questions this research raises are why the commercial and Islamic banks different; what support and challenges do customers experience in both banks; are the customers aware of their own banking rights and what the main essential factors which formulate the customer experience of both commercial and Islamic banks? The following sections explain the customer experience and then illustrate a customer experience framework showing the factors that influenced by customer experience, then two case studies were selected for further investigation, one is commercial and the other is Islamic, a questionnaire is disseminated to a group of people to find out their experience and variance towards the two types of banks, findings were discussed and finally a conclusion is already drawn to highlight some important recommendations.

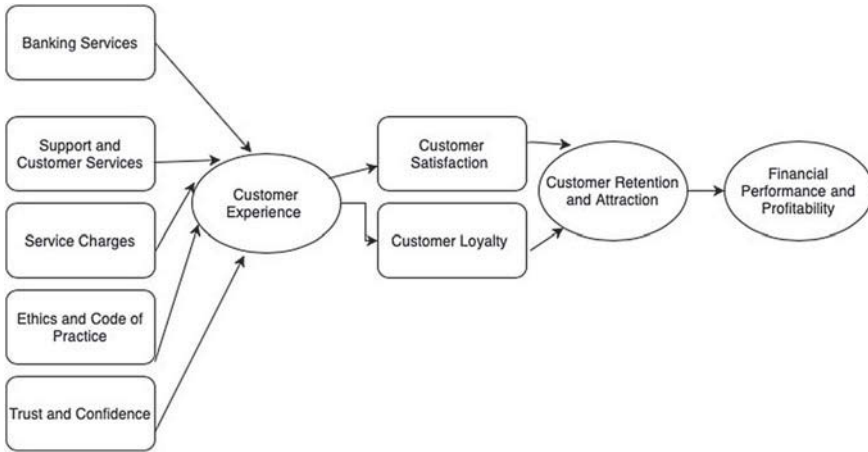
## 1.1 A Subsection Sample

### Customer Experience

Customer experience is defined as the customer's cognitive and affective assessment of all direct and indirect communications with the enterprise, which affect their purchasing and marketing behavior (Klaus and Maklan 2013). In general customer experience encompasses cognitive, affective, emotional, social and physical nature of the business, service interface, product range, price and the firm brand (Gentile et al. 2007; Verhoef et al. 2009).

### Customer Experience Framework

The Fig. 1 below shows the customer experience framework. This framework consists of essential factors which determine the customer experience towards certain bank



**Fig. 1** Banking customer experience and the influencing factors

in UK. These factors are banking services, support and customer services, charges, ethics and code or practice, and trust and confidence. These factors formulate the customer experience which determine the customer loyalty and satisfaction leading to customer retention and customer attraction and eventually improves and develop the bank financial performance and profit. This diagram shows the relationship between services provided by the bank and their financial performance. It indicates that customer experience is a crucial factor in banking retention of customers and their loyalty and determine the situation of financial performance and profitability.

The following is description of the main factors which influence the customer experience.

– Banking Services

There are a wide range of services any bank could offer. Normally banks offer overdraft, transfer money inside and outside the account either local or international, credit and debit cards, ATM, internet and mobile banking, insurance services, investment opportunities and consultancy.

– Support and Customer Service

Customer service is essential to enhance the customer satisfaction by a series of activities as the product or service has met the customer expectation (Improving Customer Service in the Banking Industry-Case of Ghana Commercial Bank (GCB)-Ghana 2020). Customer service includes the behavior of employee towards customer, facilities available to support customer and save his/her time and effort to access the available banking services. Bank support and level of customer service determine the level of service quality. Service quality is a competitive advantage between banks and competitors and maximize high profit within a specific market (Chaoprasert and Elsey 2004).

- Service Charges

Service charges as defined into Investopedia is “A service charge is a fee collected to pay for services related to the primary product or service being purchased. The charge is usually added at the time of the transaction” (<https://www.investopedia.com/terms/s/service-charge.asp>). Customers should be fully aware of the service charges incurred on banking services and how to eliminate or reduce them, and this is part of the bank obligations towards customers. In respect of Corporate loans it could be argued that the fee is charged as a percentage of the overall borrowing undertaken and is also dependent upon a number of criteria such as length of relationship, category of the transaction, risk appetite of the Bank etc. Furthermore, service charges are more associated with the ongoing costs of providing services to the customer.

- Ethics and Code of Practice

Ethics and code of practice is a set of internal regulations and guidelines that should make a commitment to operate legally and it should promote honesty, accountability and ethical conduct. These is no one-size-fits all code of ethics applicable for any bank as banks vary in size and engage in different types of business (<https://work.chron.com/code-ethics-bankers-22345.html>).

- Trust and Confidence

Trust is defined as “individual’s belief in, and willingness to act on the basis of words, actions and decisions of another” (Lewicki et al. 2000). Trust and confidence affects customers satisfaction.

Developing Customer experience improves the customer satisfaction and customer loyalty. Once the customer satisfaction and customer loyalty are improved, the bank will retain the existing customers and attract more new customers.

- Customer Satisfaction

Previous studies have alluded to customer satisfaction in terms of receptiveness, approachability, reassurance, understanding, courteousness, empathy, noticeability and visibility (Kumar et al. 2009; Mengi 2009; Parasuraman 1988). Howard and Sheth defined customer satisfaction as “the buyer’s cognitive state of being adequately or inadequately rewarded for the sacrifices he has undergone” (Howard and Sheth 1969). Customer satisfaction factors are differed from one sector to another depending on the services and products offered. Ameme, B., claimed that there is positive impact of technology on customer satisfaction (2016). Machogu, A. found that e-banking as a technology has positive influence on customer satisfaction and the related factors are; accessibility, convenience, security, privacy, content, design, speed, fees and charges (2015). Chochol’áková, A. stated that satisfied customers are more likely to recommend their bank to other new customers (2015).

- Customer loyalty

McCormack et al. (2017) stated that the bank could achieve customer loyalty by moving away from a product centric bank to a customer centric bank, in other



words treating a customer as a partner in a long-term relationship. Customer loyalty leads to stimulating profit and growth and driven by the customer satisfaction. The customer becomes fully satisfied by the quality of provided services from the bank employees. Therefore, the bank should pay more attention to provide adequate, high quality training and support services and policies which enable employees to deliver better services and products to customers (Heskett et al. 1994). Rahi, S. shows that customers are more loyal towards those banks offering internet banking services (2015).

It can be argued that there is a correlation between customer satisfaction and customer loyalty. In their study Bowen and Chen (2001) argue the more customers are satisfied, the more loyal they become, bringing about stability. This can lead to snowballing which implies recommendation from a satisfied customer to a new customer [(friend or acquaintance or family)]. As for banks, such loyalty increases customer base and reduces unnecessary costs in terms of time and effort. Cohen et al. (2007) point out that devoted customer utilizes less time especially during any transaction as such seem to less concerned about the bank account charges and this leads to an increase of revenues for the banks.

- Customer retention

McCormack et al. (2017) stated that it is much cheaper up to 10 times to provide existing customer with an existing product than acquiring new customer, for example “three hundred customers with three products each is surely a better indicator of trust than 900 customers with one product each.” It is the same as 5% market share and 10% return on capital is much better than 10% market share and 5% return on capital.

- Financial Performance and Profitability

It is clear and straight forward and casualty relationship; the customer satisfaction increases the customer loyalty which directly improve the financial performance and increase profitability. Hallowell (1996) presented a study on retail banking operations and found that attainable increases in customer satisfaction could influence and improve and increase profitability.

## Research Methods

This research starts by reviewing the available literature and publications from both commercial and Islamic banks websites with a view to finding if there is any different approach taken to customer service and customer expectations from a UK Islamic Bank to an international one operating in the UK. Two websites are revisited; one for commercial and the other for Islamic bank. This provided opportunity to look at the different services offered, charges incurred, customer support, services and quality of services and annual reports and statistics if available. In addition, a design questionnaire deiminated to a wide range of bank customers to evaluate their banking experiences with both Islamic and commercial banks and what do they suggest to improve their experience. The use of a questionnaire allowed to gather relevant quantitative data. Questionnaires are usually uniformed and administered to respondents.

These questionnaires were conducted via email and web-based using google doc, That has resulted in only 18 responds.

To supplement the data from questionnaire, a focus group of business people was used to explore the group's perspective of the problem, their experience of customer service with a view to generating new ideas and how banks could pay more attention to customers. It was anticipated that the findings would eventually lead to improvement in banking financial performance and increase profitability. A combine of both questionnaire and focus group enhance the scope of the research. Eventually, two case studies have been examined and investigated in this research; Al-Rayan bank as an example of Islamic banking and HSBC as an example of commercial banking.

## 2 Islamic Banking

Investopedia defined the Islamic banking as “Islamic banking, also known as non-interest banking, is a banking system based on the principles of Islamic or Sharia law and guided by Islamic economics. Islamic banks make a profit through equity participation which requires a borrower to give the bank a share in their profits rather than paying interest” (<https://www.investopedia.com/terms/s/service-charge.asp>).

In order to fully understand the Islamic banking, we will look et al. Rayan Bank as a case study of an Islamic banking in the UK. This bank was established in 2004. It is the oldest and the largest sharia compliant retail bank. Below we will apply the customer experience framework to explore all the relevant factors in the Islamic banking.

### Banking Services

Al Rayan bank offers variety of banking services; personal banking, business banking, premier banking and sharia finance. In personal banking it offers current account, savings, home finance and other services which include international money transfer, investment services, a Zakat service for those seeking help in calculating and paying their Zakat, and guidance on Islamic tax and wills. Business banking includes current account, savings, commercial property finance and other products as international money transfer, investment services, a Zakat service for those seeking help in calculating and paying their Zakat, and guidance on Islamic tax matters and wills. Premier banking includes financial planning and helping in buying properties in the UK. Finally, the sharia finance which includes Islamic finance and sharia compliance.

### Support and Customer Service

Al Rayan bank offers online and mobile banking and all forms of contacts for customers to stay in touch with their bank, including phone service, local and international, post, online form and sending secure message via online or mobile banking, however, the support is not available 24/7 as appears from the contact hours on the

**Table 1** No. of complaints from 1 July to 31 December 2019 \* credit card is not available (Al Rayan Bank 2020)

| Product/service grouping    | Provision (at reporting period end date) | Number of complaints opened | Number of complaints closed | Percentage closed within 3 days | Percentage closed after 3 days but within 8 weeks | Percentage upheld | Main cause of complaints opened |
|-----------------------------|--|-----------------------------|-----------------------------|---------------------------------|---|-------------------|---------------------------------|
| Banking and credit cards*   | 10.52                                    | 1,310                       | 1,125                       | 21%                             | 78%   | 75%               | General admin/customer service  |
| Home finance                | 38.96                                    | 209                         | 246                         | 24%                             | 72%   | 50%               | General admin/customer service  |
| Insurance & pure protection | 0.00                                     | 2                           | 2                           | 0%                              | 100%  | 0%                | Advising, selling and arranging |
| Total                       | 11.70                                    | 1,521                       | 1,373                       | 21%                             | 78%   | 70%               | N/A                             |

website. There is no online support and live chat. Complain procedure is provided via online form and the resolution time varies from 5 working days to 8 weeks depends on the importance and complication of the complaint.

Table 1 below shows the latest statistics from July to December 2019, published in the bank website showing the number of complaints and the response time.

### Service Charges

Overdraft service is not available in the Islamic bank either arranged or unarranged.

Al-Rayan bank charges fees to maintain the account, this amount is 20 pound per month and it will be waived if the customer has a balance of 50,000 on deposit or has a home purchase plan. There is also a plus counter fee which is 5 pound per transaction to maximum 5 pound a day. The debit card withdrawal is limited to 750 pound daily from any ATM and the maximum purchase limit is 20,000. For sending money within UK is free on faster payment service and BACS, and 15 pounds on CHAPS. While receiving money is free of charge.

### Ethics and Code of Practice

Al-Rayan bank is a signatory of HMRC's code of practice on taxation for banks. It follows sharia, and conduct activities in a fair, ethical and socially responsible manner. The bank is an independent UK bank authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority.

### Trust and Confidence

Al-Rayan is committed to protect the privacy and security of customers. It has been rated of 3.88/5 from the customer reviewers on website of smart money people (<https://smartmoneypeople.com/al-ryan-bank-reviews>).

### **Customer Satisfaction**

Trust pilot website has rated Al-Rayan bank average of 3/5 for customer satisfaction. There are 459 reviewers participated in their website (<https://uk.trustpilot.com/review/alrayanbank.co.uk>).

## **3 Commercial Banking**

### **3.1 Banking Services**

Commercial bank is defining as “a type of financial institution that accepts deposits, offers checking account services, makes various loans, and offers basic financial products like certificates of deposit (CDs) and savings accounts to individuals and small businesses. A commercial bank is where most people do their banking, as opposed to an investment bank” (<https://www.investopedia.com/terms/s/service-charge.asp>).

HSBC is a famous commercial bank in the UK. It offers four main banking services; including merchant services, banking, borrowing, investing and insurance. In banking, the bank offers current accounts for individual and businesses, savings, credit cards. In borrowing, the bank offers, loans and mortgages. In investing, the bank offers, three types of investment; ISA, funds and shares. In insurance, the bank offers life, home, travel and car insurance.

#### **Support and Customer Service**

HSBC provides contact details including an emergency 24/7 telephone number, information and help with online and mobile banking, mortgages, cards, overdraft and complaint online form. However, there is live chat service but not search engine in the website to ease the reach to relevant information. Table 2 below shows the complaints from 1<sup>st</sup> July to 31 December 2019 and the response time (HSBC Bank 2020).

### **3.2 Service Charges**

#### **Arranged and Non-arranged Overdraft**

The Table 3 below sets out the charges for using overdraft. HSBC charges an Annual Interest Rate on arranged and unarranged overdraft. It has also set out the EAR (Effective Annual Rate) for the customer information. This rate takes account of how often interest is charged, but not other fees or charges. It has also explained where any interest free amount applies.

**Table 2** Shows complaints from 1 July to 31 December 2019

| Product/service group                | Number of complaints opened by volume of business | Number of complaints opened | Number of complaints closed | % closed within 3 days | % closed after 3 days but within 8 weeks | % upheld <sup>1</sup> | Main cause of complaints opened |
|--------------------------------------|---|-----------------------------|-----------------------------|------------------------|--|-----------------------|---------------------------------|
| Banking & credit cards               | 8.55 per 1,000 accounts                           | 206,194                     | 206,891                     | 68.6%                  | 30.7%                                    | 56.2%                 | General admin/customer service  |
| Home finance                         | 10.66 per 1,000 balances outstanding              | 9,572                       | 9,529                       | 46.1%                  | 52.7%                                    | 65.1%                 | General admin/customer service  |
| Insurance and pure protection        | 29.86 per 1,000 policies in force                 | 185,172                     | 156,168                     | 41.2%                  | 45.0%                                    | 45.1%                 | Advising, selling & arranging   |
| Decumulation <sup>2</sup> & pensions | 5.45 per 1,000 policies in force                  | 57                          | 55                          | 9.1%                   | 74.5%                                    | 25.5%                 | Advising, selling & arranging   |
| Investments                          | 2.36 per 1,000 client accounts                    | 2,277                       | 2,195                       | 33.3%                  | 62.7%                                    | 52.8%                 | General admin/customer service  |
| Credit related                       | 10.45 per 1,000 accounts/loans                    | 8,112                       | 8,231                       | -                      | -  | 59.5%                 | -                               |

### Account Fees

The Table 4 below shows the amount of the fee or interest that applies to each current account. It also shows the maximum amount the bank might charge account holder in a month in relation to an unarranged overdraft (this is called the Monthly Maximum Charge).

### Other Charges

For most accounts, the bank doesn't charge for the account for sending or receiving money. There are some exceptions, though. These are set out below. The bank takes charges for payments from the account when the payment is made. Also, the bank may charge for services which aren't set out in this agreement. But the bank will always tell the account how much it is and check that the account holder is happy to pay it before the bank provide the service. If the bank has to do anything to comply satisfy court order on account(s), such as a child maintenance order, it may charge a fee. The bank can charge up to the maximum the law allows. The Table 5 below shows the determined charges the bank could charge on sending money according the types of accounts.

### Ethic and Code of Practice

Nothing relevant to ethics code of practice in the HSBC website (<https://smartmoneypeople.com/al-ryan-bank-reviews>).

**Table 3** Shows the account types and the arranged and non-arranged overdraft charges

| Account                             | Arranged and unarranged overdraft Annual Interest rate | Arranged and unarranged overdraft EAR (effective annual rate) | Interest free overdraft amount   |
|-------------------------------------|--|---|--|
| HSBC Jade (HSBC Premier Account)    | 34.05%   | 39.9% EAR variable  | No interest on the first £1000 of your arranged overdraft  |
| HSBC Premier Bank Account           | 34.05%   | 39.9% EAR variable  | No interest on the first £500 of your arranged overdraft   |
| HSBC Advance Bank Account           | 34.05%   | 39.9% EAR variable  | No interest on the first £25 of your arranged overdraft  |
| Bank Account                        | 34.05%   | 39.9% EAR variable  | No interest on the first £25 of your arranged overdraft  |
| Bank Account Pay Monthly            | 34.05%   | 39.9% EAR variable  | No interest on the first £25 of your arranged overdraft. You also have an interest free unarranged overdraft amount of £50             |
| Student Bank Account                | 0%   | 0%  | None   |
| Student Bank Account                | 0%   | 0%  | None   |
| Graduate Bank Account               | 34.05%   | 39.9% EAR variable  | Year 1: No interest on the first £1500 of your arranged overdraft<br>Year 2: No interest on the first £1000 of your arranged overdraft |
| Current Account (no longer on sale) | 34.05%   | 39.9% EAR variable  | No interest on the first £25 of your arranged overdraft  |

### Trust and Confidence

HSBC applies the data privacy laws including the General Data Protection Regulations (GDPR). HSBC has been rated of 3.68/5 from the customer reviewers on website of smart money people (<https://smartmoneypeople.com/al-ryan-bank-reviews>).

### Customer Satisfaction

Trust pilot website has rated HSBC bank poor of 1.5/5 for customer satisfaction. There are 2704 reviewers participated in their website (<https://uk.trustpilot.com/review/alrayanbank.co.uk>).

**Table 4** Shows the account types and the applicable monthly charges

| Account                             | The maximum monthly charges |
|-------------------------------------|-----------------------------|
| HSBC Jade (HSBC Primer Account)     | 20                          |
| HSBC Premier Bank Account           | 20                          |
| HSBC Advance Bank Account           | 20                          |
| Bank Account                        | 20                          |
| Graduate Bank Account               | 20                          |
| Bank Account pay monthly            | None                        |
| Student Bank Account                | None                        |
| Current Account (no longer on sale) | 20                          |

**Table 5** Shows the determined charges on sending money according the types of accounts

| Other charges sending money   | From   | To                 | Charges for                  |  |      |
|---|--|--------------------|------------------------------|--|------|
|   |  |                    | Branch and telephone banking | Online or mobile banking (if it's available) | Post |
| Sending money within the UK by CHAPS  | An HSBC Premier Bank Account (including HSBC Jade) | HSBC accounts      | £12                          | N/A  | £17  |
|   | Any other (non-Premier) HSBC accounts              | HSBC accounts      | £17                          | N/A  | £17  |
|   | HSBC accounts                                      | All other accounts | £17                          | N/A  | £17  |
| Sending money in euro within the UK or the EEA  | HSBC accounts                                      | HSBC accounts      | Free                         | Free   | £17  |
|   |  | Non-HSBC accounts  | Free                         | Free   | £17  |
| Sending money <ul style="list-style-type: none"> <li>• in any currency (other than euro) outside the UK</li> <li>• in any foreign currency (other than euro) within the UK</li> <li>• in euro outside the</li> <li>• EEA</li> </ul> | HSBC accounts                                      | HSBC accounts      | Free                         | Free   | £17  |
|   |  | Non-HSBC accounts  | £9                           | £4   | £17  |

### Quality of Service

As part of a regulatory requirement, the bank participated in an independent survey conducted to ask approximately 865 customers of each of the 16 largest personal current account providers if they would recommend their provider to friends and family. The results represent the view of customers who took part in the survey. These results are from an independent survey carried out between January 2019 and December 2019 by Ipsos MORI as part of a regulatory requirement (Figs. 2 and 3).

#### Overall service quality

We asked customers how likely they would be to recommend their personal current account provider to friends and family.

##### Ranking



#### Online and mobile banking services

We asked customers how likely they would be to recommend their provider's online and mobile banking services to friends and family.

##### Ranking



Fig. 2 Shows the overall service quality of banks

#### Services in branches

We asked customers how likely they would be to recommend their provider's branch services to friends and family.

##### Ranking



#### Overdraft services

We asked customers how likely they would be to recommend their provider's overdraft services to friends and family.

##### Ranking



Fig. 3 Shows the quality of bank services conducted by Ipsos MORI



## 4 Results and Discussion

Banking services vary between the two different banks. Table 6 below from the

**Table 6** Comparative analysis between commercial bank and Islamic bank

| Banking services                          | Islamic bank  | Commercial bank   |
|---|---|---|
| Current account (individual and business) | Supported   | Supported   |
| Savings                                   | Fixed and instant Savings depends sharia  | Fixed and instant Savings depends interest rate   |
| Home finance                              | Home Purchase Plans (HPP) and Buy to Let Purchase Plans (BTLPP) do not involve interest charges and are based on joint ownership  | Interest based mortgage   |
| International money transfer              | Based on sharia compliant exchange rate<br>Admin fees of 12 pound for amount less than 10,000pound, 25 admin fees for 10,000 pound and above                                  | Quick and simple international money transfers with a flat 0.5% transfer fee for most transfers |
| Investment services                       | The Discretionary Portfolio Service (DPS) which was operated and administered by Praemium Administration Ltd (Praemium), provided access to a series of investment portfolios | ISA<br>Funds<br>Shares  |
| Credit card                               | Not available   | Classic Credit Card, Purchase Plus Credit Card, Premier Credit Card, Student Credit Card        |
| Life insurance                            | Not supported   | Supported on the basis of interest rate   |
| Home insurance                            |   |   |
| Travel insurance                          |   |   |
| Car insurance                             |   |   |
| Commercial property finance               |   |   |
| Sharia finance                            | Supported on sharia compliant   | Not supported   |
| Zakat service                             |   |   |
| Islamic tax and wills                     |   |   |
| ISA                                       | Not supported   | Supported on the basis of interest rate   |
| Funds                                     |   |   |
| Shares                                    |   |   |

literature and the two investigated banks, shows the different banking services and how these banks manipulate these services as if they are available or supported. We noticed that the Islamic bank supports all services which are compliant with sharia law, however, the commercial bank supports all services whether they are compliant with sharia or not. For example, the credit card is not supported by the Islamic bank as it is against the sharia law, however, the commercial bank supports the credit card and offers different types of it.

Table 7 above exhibit the number of complaints received by both banks and the percentage closed with three days and between three days to eight weeks, the uphold percentage and the main reason for the complaint. We noticed that the commercial bank has higher percentage of closed within three days, however, less percentage of closed after three days but before eight weeks. All the complaints are fall within the same causes; general admin, customer services and advising, selling and arranging.

**Table 7** Shows no. of complaints and the percentages of open, close and uphold cases

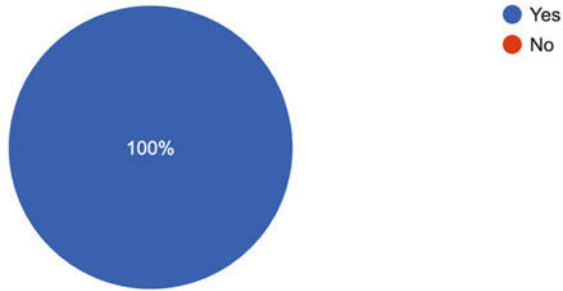
|                               | Type of bank | No. of complaints opened | No. of complaints closed | % closed within 3 days | % closed after 3 days but within 8 weeks | % uphold | Main cause of the complaint opened |
|-------------------------------|--------------|--------------------------|--------------------------|------------------------|--|----------|------------------------------------|
| Banking                       | Islamic      | 1310                     | 1125                     | 21%                    | 78%                                      | 75%      | General admin/customer service     |
|                               | Commercial   | 206,194                  | 206,891                  | 68.6%                  | 30.7%                                    | 56.2%    |                                    |
| Home finance                  | Islamic      | 246                      | 209                      | 24%                    | 72%                                      | 50%      | General admin/customer service     |
|                               | Commercial   | 9572                     | 9529                     | 46.1%                  | 52.7%                                    | 65.1%    |                                    |
| Insurance and pure protection | Islamic      | 2                        | 2                        | 0%                     | 100%                                     | 0%       | Advising, selling and arranging    |
|                               | Commercial   | 185,172                  | 156,168                  | 41.2%                  | 45.0%                                    | 45.1%    |                                    |

Al-Rayan bank has been rated of 3.88/5 (78%) from the customer reviewers on website of smart money people, while HSBC overall service quality rating is 61%.

### Results from the Questionnaire

Q1. - Do you have a bank account?

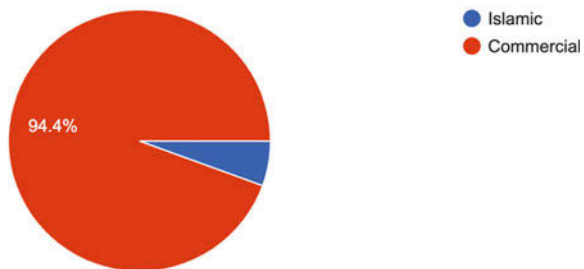
18 responses



The findings from question one suggest that all the respondents had a bank account of some sort. It could be argued that account ownership especially in developed countries gives the individuals to bank and withdraw money when they want. According to the press release in 2018, it is indicated that at least 65% of adults-3.8 billion people have a bank account. In relation to the UK, the figure ranges from 1.3 m to 1.7 m for adult without a bank account.

Q2. Is your bank Islamic or Commercial?

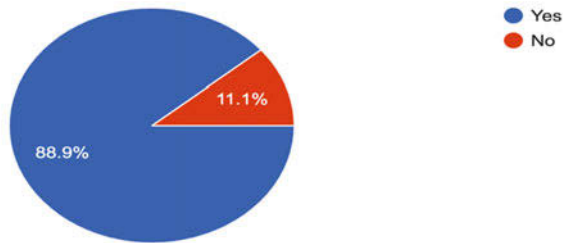
18 responses



The findings from question 2 indicate that 94.4% of the respondents have an account in a commercial Bank whilst only 5.6% have an account in Islamic Bank. Given the demographics of the respondents, it is clear that the commercial bank is the most preferred bank and people have various options of the banks on the high street. What seems to be crucial here is whether customers are prepared to transfer their accounts to Islamic banks or aware of the benefits of using the Islamic bank.

### Q3. Have you heard about Islamic Banking?

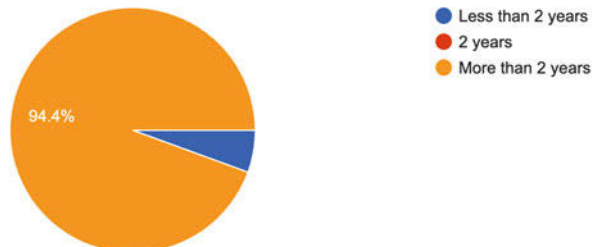
18 responses



The figure above shows that the majority of respondents are aware of the existence of Islamic banks, which indicates that the Islamic Bank is not new in the UK. It is noted that at least 11.1% of the respondents have not heard about the Islamic banking, an indication that there is a lack of promotional activities by the bank. It is also an indication that very few people have inquired about the services they provide and whether or not it is a better fit for their banking needs.

### Q4. - How long have you been with your bank?

18 responses



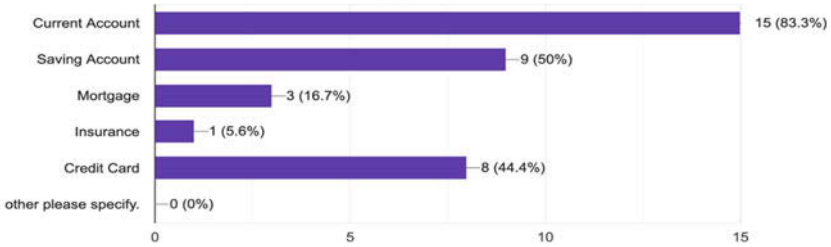
The above figure shows that 94.4% of the respondents have been with the same bank for a longer period. This indicates a long-term relationship between a customer and bank. Customers tend to stick with the same banks because they are either happy with the service or they find it tedious to change banks. It also noted that customers are more likely to stay with the same banks because banks value their customers and find it less expensive to keep the new than to acquire new customers. Banks are quite aware that loyal customers are the most important and therefore, banks try to keep them as much as they can by maintain their relationships with customers. To keep up with the competition, banks offer various incentives to ensure that existing customers stay happy for the over a longer period of time.

According to question 5, the sample indicates that 83.3% of the respondents have a current account which caters fundamentally on frequent deposits and withdrawals. The sample shows that half the respondents have some form of saving with the bank which allows individuals to deposit money and earn some form of interest

determined by the banks. This type of account has a limited number of per month if has to generate a higher interest. Other bank services which are offered by bank were utilized by the respondents such as Mortgage (16,7%), Insurance (5,6%) and credit card (44,4%). The banks offer different types of services that all accessible to all customers of all ages. None of the respondents seemed to be unaware of the services that are on offer from banks and how these services work for them.

**Q5. What type of services do you have with your bank?**

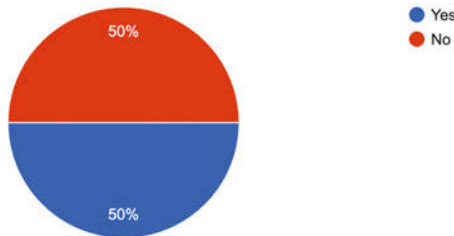
18 responses



if

**Q6. - Are you aware of the terms and conditions related to your banking services?**

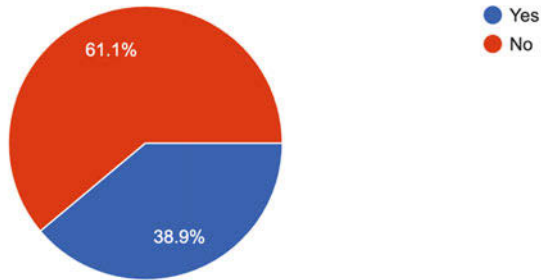
18 responses



According to question 6, half of the respondents are aware of the terms and conditions related to the banking services whilst the half do not have an understudying of the general terms and conditions. It is always advisable to read the small prints before opening the account or signing any document. It is the work of the bank to ensure that customers are explained fully and also comprehend these terms related to banking services. The lack of understanding such terms can lead to misinterpretation and direct loss in the form of interest and entire agreement.

**Q7. Are you aware of any charges incurred on your banking services?**

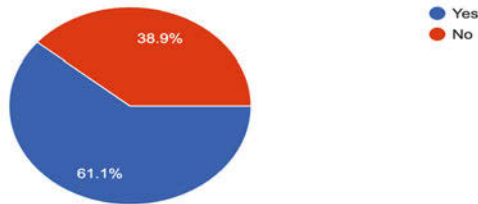
18 responses



More than 60% of the questionnaire respondents felt that they are aware of the bank charges which in most cases are disproportionate. Often these charges relate to operating the customer’s account or a particular bank service and other times is purely on unauthorised overdraft. Nearly 40% of the respondents did not about the bank charges, Such absence of knowledge can lead to customers losing out the benefits offered and/or letting the bank over charging the customers.

**Q8. Have you been contacted by your bank to discuss your banking status or offering new services?**

18 responses

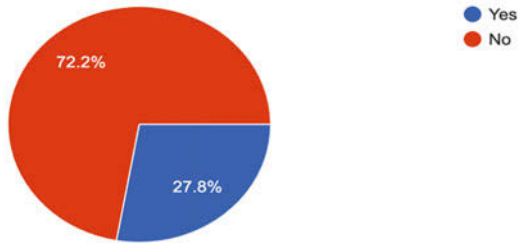


More than 60% of the respondents were contacted by banks to sell them new products. In order to stay competitive banks contact customers to let them know the available services, offers and how they benefit from keeping their money in the bank. It is in the interest of the bank to provide appropriate information about the financial services and other banking options the customers can benefit from. Nearly 40% had not been contacted by the bank in any form. This may suggest a weak relationship with the customers and a loss on the bank to provide additional information to customers. This in a way can lead to customers transfer their money to other banks.

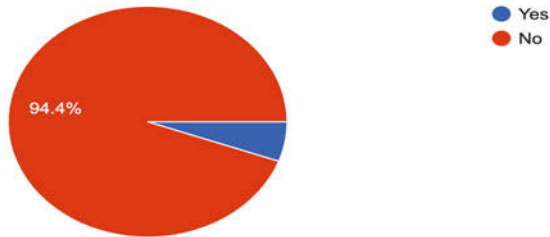
The finding from question 9 suggest that 72.2% of the respondents are aware of the investment products available from banks. This reinforces the data collected from the focus group which points out that commercial Banks use different types of communication channels to promote their products. Only 27.8% of respondent were unaware of the investment opportunities. This suggests that some of the respondents were not receiving the promotional materials or the banks are not doing enough to

ensure that all their customers have access to the information and/or banks don't have clear communication strategies to promote to all the customers.

Q9. Are you aware of investment opportunities with Commercial Banks?  
18 responses



Q10. Are you aware of investment opportunities with Islamic Banks?  
18 responses

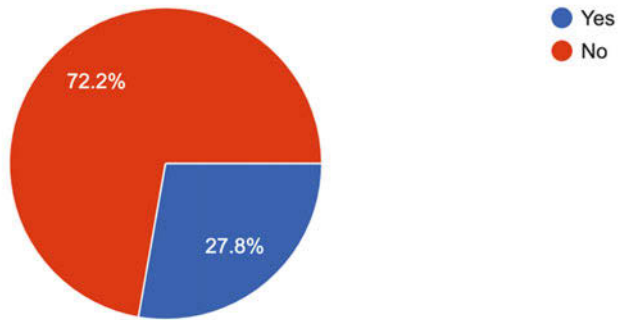


Findings from question 10 shows that more than 90% of the respondents were not aware of the investment opportunities from the Islamic bank. This reinforces the data from the focus group about the visibility of the Islamic Bank and how it does not regularly promote its services. Hence, customers have no clear ideas of what is on offer. Only a small percentage of the respondents were aware of the investment opportunities. The data from focus group indicates that even those who knew the investment opportunities did not have clear picture of the benefits offered by such bank and some had some of their monies invested in commercial banks.

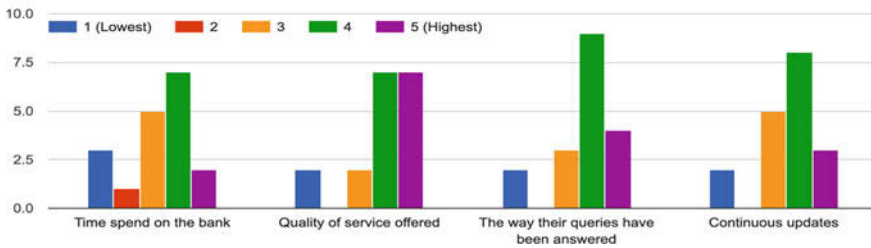
Question 11 shows that most of the respondents were aware the different services offered by the commercial bank. This reinforces the data collected from the focus group that customers prefer to deposit their monies in the commercial bank because of the different types of services and options available in such banks. Only 27.8% of the respondents were unaware of the of the bank services, reinforcing for banks the lack of importance in sharing the appropriate information to the customers.

### Q11.Are you aware of the different services offered by your bank?

18 responses



### Q12. What does customer satisfaction mean to you? choose the appropriate option.



The data from question 12 suggests that speed to which queries are handled is the most important thing for most of the respondents. Responses time to customers and quality of service are important for both the customers and banks. This was reinforced from the focus group that some banks make it point to respond to customers' inquiries promptly and some have improved their customer services by asking customer to provide feedback after the services offered by the bank. How effective the banks respond to customers complaints or queries is determined by the customer satisfaction and willingness to keep banking with such banks.

The data from question 13 shows that most respondents see cost as important when dealing with Sharia Law banks but surprisingly a number of those who do bank that way do not see it as a priority. This reinforces the data collected from the focus group that some customers have no any awareness of Sharia law is about and some draw the line that Islamic Bank is for only for Moslems and not for other denominations. This is a way creates a barrier in using the Islamic Banking as most people are unaware of the Sharia law.



Q14. How do you communicate with your bank?  
18 responses

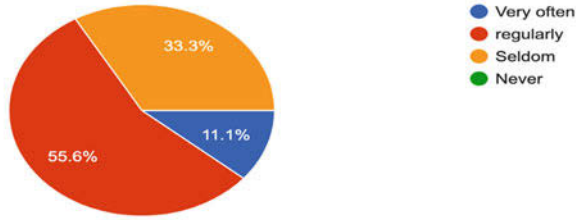


The data from question 14 shows that 77.8% of the respondents use the online banking compared with other means. The online banking has overtaken the high street banking and visit to the banks has been reduced. The data shows that only 11.1% of the respondents frequently visit the high street banks. This reinforces the data from the focus group that internet banking has become more popular and very much used by customers as compared to high street branches. It is a great way checking to check instantly the transactions and also to trace the bank transfers and other activities. Banks are using more the online banking or apps to communicate to their customers. The data from the focus group indicates that customers are getting the first hand information and do not have to wait for the letter or confirmation through the post.

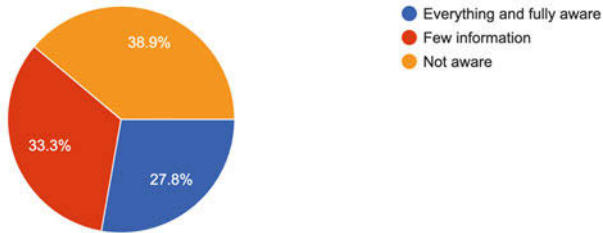
The findings from question 15 show that 55.6% of the respondents have regularly maintained the relationship with the bank, an indication that the banking facilities are used regularly. It is also noted that 33.3% of the respondents felt that very seldom do they maintain the relationship with the bank. The data from the focus group show that in some cases there is lack of trust on the part of the customers and delay for the banks to respond that is why there are some irregularities in the communication with the bank.

The findings from question 16, suggest that more than half of the respondents have little or real understanding of how their bank charges interest. Most of the respondents in the focus group did not know how the interest rates are calculated and how banks determine them. Although the banks allow the customers to compare the interest rates offered, how significant and its effectiveness this process is to the customers was a challenge. They however stated that the conventional banks make the customers aware of the interests customers might earn depending on the types of the bank account (current, savings, easy access or fixed) but as for the Islamic bank this was unclear.

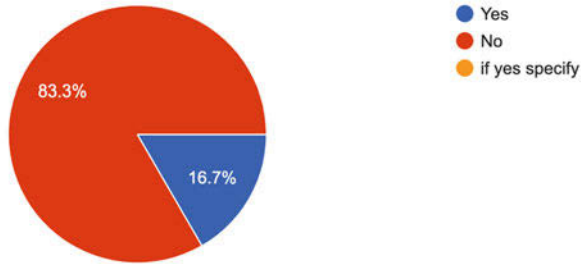
Q15. How is your relationship with the bank maintained?  
18 responses



Q16. How much do you know how the interests are charged/calculated?  
18 responses



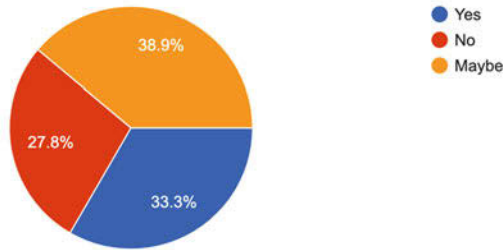
Q17. Do you have say in relation to interest rate?  
18 responses



As for question 17, 80% of the respondents felt that they had no say regarding the rates of interest they paid out, reinforcing the notion that customers are often told what the interest rate are or might be without having a clear picture of what they are calculated. The data from the focus indicates that customers are attracted to banks due to the interest rates the banks offer. However, there was an acknowledgement that banks offer different interests to their customers and because there is a no uniformity in terms of interests rates banks lose customers. The high interest rates bank offer attract customers and that even loyal customers find themselves compelled to transfer their accounts to other banks that offer better interest rates.

Q18. Does availability of 24hr customer support play a part when utilising an Islamic Bank?

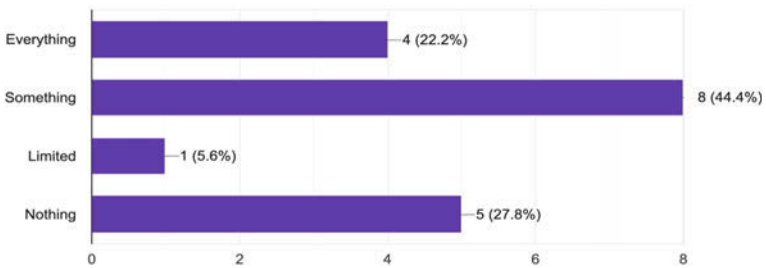
18 responses



The findings from question 18 indicate that two thirds of respondents are ambivalent to having support available when deciding to use the Sharia law bank. this was reinforced by the focus implying that lack of provision of personalised assistance to customers was one of the major factors experienced by the Islamic banking customers. It was also noted that with the advent of 24 h banking, less face to face support is provided. However there were concerns about the 24 h support that in most in was mostly automated online customer service opportunities available which was both advantageous ad disadvantageous especially for a specific group of people who were not computer say. They further noted that some of the online services were form call centres that never offered clear answers to the querries. Hence, the 24 h services was seen as not something that was readily available by some respondents especially from the Islamic banking.

Q19. How much do you know about the charges to your account?

18 responses



The findings from question 19 indicate that 22.2% of the respondents had a complete handle on how much they are charged for the use of their bank account. 44.4% of the respondents have partial knowledge whilst 5.6% had limited knowledge of the charges to their accounts. The data from the focus group suggest that banks are very keen to charge or enforce penalties for unauthorized overdraft costs and some banks impose such fees on daily fees, monthly basis which baffles some customers. The findings further suggest that the way how such charges are calculated by the banks are never communicated to the customers.

Q20. What type of services and/or quality of services do you think are available for you to support and keep you still banking with that Bank? 15 responses

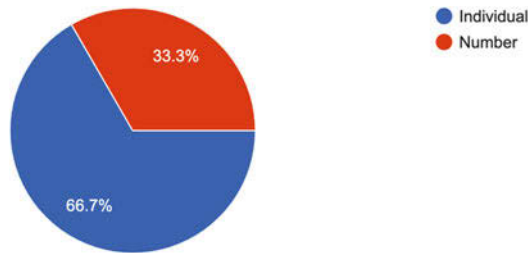
Participants in the questionnaire highlighted variety for services which are of certain interest vary and these include: Mortgage, current account and savings account, good customer services, help to buy advice, saving advice, approachable customer services, online and mobile banking, update customers with services regularly and honest.

Q21. What would you describe as your best and worst experience with your bank? 14 responses

Participants highlighted different experiences with their current bank. These experiences vary from best as quick customer service, providing advice easy, straightforward, and solving fraud issues with visa and credit cards while worst experiences vary from delay and latency in sending and receiving money, no update on new services, bad customer services, long waiting time, technical and ATM issues and failed authentication.

Q22. Based on the information you have given, do you think the bank considers you as an individual ( providing an individualised service) or you as a number ?

18 responses



The response from question 22 indicates that 66.7% of the respondents would prefer banking services tailored to their needs but this is not always possible due to lack of resources. They would like to be treated as individuals instead of a number. Notably, 33.3% of the respondents felt that they were just a number. The focus group data noted the values of treating customers as individuals as a way of maintaining a relationship between the banks and customers, enhancing the bank's reputation as well as creating a favourable atmosphere. They also the implications of considering customers as numbers with leads to banks loosing customers or switching banks.

## 5 Conclusion

This study contribute to the literature on customer awareness of both commercial and Islamic banking services in the UK, and indeed the rest of the world by providing analysis of their responds on the services and products they receive from both types of banks. The banking sector plays a vital role to the growth of economy and its survival depends on its economic activities. Banks interact with customers and this influences their decisions about where, what and how to bank their monies or get a loan. Banks offer financial services and a range of products, which drive customers to their decisions to choose a bank. This is done through various communication channels and the commercial banks stand out as the most innovative in terms of customer interaction. As banks continue to provide their services, systems are put in place to ensure that customers are satisfied with the bank's provisions, a challenge for both commercial and Islamic banks under study.

The increase of customer's awareness and experience with increase customer's satisfaction and loyalty. In some cases, the banks have to go an extra mile in managing the customer's expectations, build trust and tailor the services to customer's needs. A successful bank, whether it matches expectation or not, is judged by the customer's experience. Even when the systems fail, the customers will learn from such experience and interaction with the bank to decide the next step. Fundamentally, the banks have a role to play to incentivise the customers to ensure that customers make shrewd decisions to bank with them. The question is what can the bank do to attract and retain customers? The answers will be varied with every bank. This will require further research. The customer's awareness of what is provided, knowledge of banking systems, experience of a quality service and the overall satisfaction will determine whether to utilize the commercial or Islamic banking.

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# Investigating the Parameters Influencing Islamic Banks Financial Performance: Evidence from Five Southeast Asian Countries



Fahd Al-Shaghdari, Tahani Ali Hakami, Barjoyai Bardai,  
and Abdulmajid Obaid Hasan Saleh

**Abstract** This paper investigated the parameters that influence Islamic Banks' financial performance in Malaysia, Indonesia, Thailand, Brunei, and Singapore. The past decades have witnessed the positive expansion of Islamic banking in Southeast Asia but a discernible drop in their profitability and assets growth may denote poor performance. This requires investigation. This quantitative study examined the factors that may influence Islamic banks' financial performance, and found Assets Quality, Liquidity, Debt Funding and Equity funding as the significant parameters in determining Islamic banks' financial performance among the countries examined. Also, GDP Growth Rate and interest rate were the only external parameters with positive influence on Islamic banks' financial performance. Notably, Inflation and Tax rate were not significant in determining Islamic Banks' financial performance. Accordingly, management should strengthen the practices and implementations of the profit loss sharing (PLS) based instruments among the examined Islamic banks. Hence, disparities could be decreased while the economic opportunities could be improved, particularly those that could greatly contribute to the capital build-up and the creation of economic growth.

**Keywords** Islamic banks · Profitability · GDP growth rate · Economic growth · Southeast Asia

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F. Al-Shaghdari (✉) · B. Bardai  
Al-Madinah International University, Kuala Lumpur, Malaysia  
e-mail: [al.shaghdari@mediu.edu.my](mailto:al.shaghdari@mediu.edu.my)

T. A. Hakami  
Jazan University, Jazan, Saudi Arabia

A. O. H. Saleh  
International Islamic University, Selangor, Malaysia  
e-mail: [alamri@iiu.edu.my](mailto:alamri@iiu.edu.my)

## 1 Introduction

As key constituent to the financial systems, banking greatly affects the general financial market stability and the real strength of the economy. Banking system as a financial intermediary connects all the fundamental economic units. Through banking system, wealth can be generated, particularly through the establishment of a series of interrelated economic affairs. Banks mainly rely on interest rates, and since interest rates can be either market forced or state governed, chaos in the conventional banking sector can significantly affect the whole economics. Accordingly, interest based banking and interest free banking are the two distinct categories of banking at present time. In executing their tasks, interest based banking is practiced by conventional banking while interest free banking is practiced by Islamic banking.

Islamic banking is a recognized form of financing worldwide, as evidenced by the proliferation of Islamic banking and finance in more than 75 countries with projected annual growth of 15–20% on average. However, when integrating the Islamic financing system into the conventional financing systems, regulators and stakeholders Southeast Asia appear to be facing increasing challenges. Still, worldwide, the interest towards Islamic banking appears to be increasing, especially in the region of Southeast Asia. In Asian countries, Malaysia, Indonesia, Singapore, and Brunei are the emerging hubs of Islamic finance (Venardos 2012) are indeed promising destinations of Islamic finance. In Malaysia, Indonesia, Singapore, and Brunei, the Islamic finance appears to be developing at faster pace in various business segments in the global banking system.

Islamic Banking and Finance in Southeast Asia is a vital addition to Islamic banking. Notably, the present study is among the first few that examine the role played by economic indicators and banks indicators on the profitability among Islamic banking in countries in Southeast Asia, specifically, Malaysia, Indonesia, Thailand, Singapore and Brunei. Past studies on this subject were mostly covering the Gulf and the Middle East region, and hence, the present study is of high significance. In the last twenty years, Islamic banking in Southeast Asia has been experiencing a steady growth. Nonetheless, asset growth and profitability among Islamic banks in the examined countries appear to be plummeting significantly, denoting potential poor performance among these banks. Investigation should be carried out on this matter. It was relevantly mentioned in Razzaq (2018) that Islamic banking in countries in Southeast Asia has been experiencing slow growth and decreased profitability.

The financial performance of Islamic banks in the countries in the ASEAN region had been examined comparatively or through the use of some profitability dimensions (e.g., Sukmana and Febriyati 2016; Suppia and Arshad 2019). As reported in nearly all studies, countless factors appear to impact Islamic banking profitability significantly. Noting the presence of a research gap in the Islamic banking industry, the present study investigated the connection between financial performance of Islamic banking and the internal and external indicators in five countries in Southeast Asia namely Malaysia, Indonesia, Thailand, Singapore and Brunei. Therefore, this study will significantly add to the extant literature. Specifically, the present study



investigated the parameters influencing Islamic Banks financial performance in five countries in Southeast Asian.

Bank performance needs to be regularly assessed, in order to safeguard the banking operations risks or poor management—risks can indeed endanger the entire financial system of any country (Alqahtani et al. 2017). Several aspects are covered in the present study namely years covered, geographical regions and methodology. Meanwhile, several study limitations were discussed in Alqahtani et al. (2017), and the non-inclusion of some variables in the model was one of the limitations discussed. Ownership status of banks and the economic growth are among the excluded variables which may impact the financial performance of bank. The length of analysis period was also mentioned as a limitation—an 8-year period is regarded as short, and thus, longer period of study may yield different outcomes. Ownership status and economic growth are thus included in this study, with ownership status represented by equity funding.

Past extant studies were mostly covering a short time period, and some did not specify the year covered. However, some that did were Khan et al. (2015) whose study period was between 2006 and 2011, Abusharbeh (2014) whose study period was between 2008 and 2013, Amelia (2015) whose study period was between 2005 and 2012, Ariff et al. (2017) whose study period was between 2007 and 2009, and Rashid et al. (2017) whose study period was between 2009 and 2014. As can be observed, the period covered by all these studies was short. Hence, the present study would cover longer period, specifically 12 years, covering also the year 2020 as the most recent year. Following Abduh et al. (2017), the analysis period would be expanded, with the inclusion of more explanatory factors in the model to guarantee robustness to the model.

Studies on the performance and struggles of Islamic banks in *Muslim* minority countries have been very few. In fact, most were carried out in the context of *Muslim* majority countries. Also, studies carried out in *Muslim*-majority countries on the subject were primarily exploring the theoretical issues and descriptive statistics rather than on the thorough statistical and econometric estimation (Abubakar and Aduda 2017). The performance of Islamic banks in Muslim majority countries (Malaysia, Indonesia, and Brunei) and *Muslim* minority countries (Thailand and Singapore) would thus be empirically analyzed in the present study. Also, as one of the largest *Muslim* communities in the world, the Asian region has been explored much empirically in terms of its Islamic banks' profitability.

Following the introduction section, the next section which is Sect. 2 discusses the literature review. In Sect. 3, the research methodology is presented. Section 4 provides the details of data analysis and results. The results are discussed in Sect. 5 while the study implications, recommendations and contributions are highlighted in Sect. 6. Directions for Future Research can be found in Sect. 7, and this study is concluded in Sect. 8.

## 2 Literature Review

Abugamea (2018) reported that in 2017, there were 505 Islamic banks together with 207 Islamic Banking windows in service in more than 75 countries, and most of these bank were in the Middle East and Southeast Asia, mainly in Bahrain and Malaysia, while a few were in Europe and the USA (Abugamea 2018). It was reported by Chowdhury et al. (2016) that Islamic banking and finance market was worth \$400 billions, and in 5 years, the amount was projected to go up to \$4 trillion.

Determinants of bank performance are many, and among them are growth, profitability, liquidity, efficiency, credit risk performance, and solvency. Performance is evaluated using the outcomes of the analysed variables, but for all banks, their ultimate goal is to make profits. Therefore, scholars and researchers have been using profitability as a general indicator of bank performance. Studies on bank performance and profitability have looked into the effect of attributes including firm-specific variables. In this regard, the macroeconomic variables have been regarded as vital determinants of banks' financial performance.

Ability to survive is crucial in today's globalization and competition era and various criteria have been used in bank performance evaluation. Among the aspects used in performance evaluation are: profitability, liquidity, leverage, innovation, management performance, market share, productivity, human resources, quality of products, and sales volume. Performance evaluation is crucial for Islamic banks because Islamic banks need to be competitive not only against conventional banks but in the industry as well. Performance evaluation allows organization to identify its efficiency and effectiveness, allowing the organization to accordingly address its weaknesses (Hassan 2012).

Islamic banking's financial performance should be examined (Sukmana and Febriyati 2016; El Moussawi and Obeid 2010) and decision should be made based on the evaluation outcomes as to what needs to be done in order to develop this industry (Sukmana and Febriyati 2016). Notably, the prices of Islamic products can be increased with superior performance. At the same time, the amount of investments can increase. Performance can also determine the regional and international growth of Islamic banks in future.

In their study, Zulfiqar et al. (2016) examined the financial performance of Islamic banks specifically Dubai Islamic Bank (DIB) in United Arab Emirates (UAE), Pakistan and Jordan through the application of DuPont Approach. Financial performance was represented by return on equity (ROE), while data were acquired from annual reports (income statement, and Balance Sheets of selected banks. The authors found superiority of financial performance (return on equity) of DIB in UAE to that in Pakistan and Jordan. Differences in the results of DIB in each examined country were due to the different levels of gained profitability, efficiency, debt policy, bank environment, and Bank age. The duration of Islamic banking implementations in each country also affected the outcomes.

In another study by Chowdhury et al. (2017), the Determinants of Islamic Bank Performance were examined using Dynamic GMM, Quantile Regression, and

Wavelet Coherence Approaches. Specifically, the authors comparatively analysed the internal and external determinants of Islamic banks' profitability in the Gulf Cooperation Council (GCC) region. The study involved 29 Islamic banks operating in 5 GCC countries and the obtained data covered the period of 2005–2013. Static and Dynamic models were used. The dynamic GMM demonstrated a significant linkage between equity financing and operating efficiency and macroeconomic variables (e.g., money supply, and inflation). On the other hand, the performance of Islamic banks Bank-specific variables (e.g., credit risk, equity ratio, and cost-efficiency ratios) demonstrated no significant difference. Also, the wavelet coherence analysis showed that ROA was driven by credit risk, equity ratio, and cost-efficiency ratios.

In Brunei setting, Ali et al. (2018) looked into the impact of macroeconomic indicators on the profitability of Islamic banks, with the use of secondary from the 2012–2016 period. The obtained data were analysed using Stata statistical software and the findings demonstrated the significant positive impact of GDP growth rate, inflation, exchange rate, oil prices and money supply on Islamic Banks' profitability. Among the determinants of profitability, the authors concluded oil prices, GDP and inflation as the most significant, while exchange rate and money supply as the least significant. Based on the results, the authors suggested that regulators and policy makers to identify the alternative resources for the economic revival.

## ***2.1 Rationalization of Studying Southeast Asia Region***

Owing to their demographics and their growth potential, countries in the region of Southeast Asia are projected to become the worldwide leader for Islamic finance (MIFC 2017). The examined countries (Malaysia, Indonesia, Brunei, Thailand, and Singapore) have different size, population, stages of development and economic structure, and yet, they are all fast developing economies.

Asia is currently an indispensable part of the growing global wealth, and in fact, Asia has been considered as a strong economic growth as it creates substantial amount of high net worth individuals aside from generating the need for more products of wealth management (Lebdaoui and Wild 2016). As at 1H17, KFH (2017) reported that the Asia pacific region makes up 20% of the total global household wealth, which is equivalent to USD48.1tn. As such, the Islamic funds industry has the ability in capturing this vast untapped potential.

The region of Southeast Asia is where the most established and experienced institutions within the Islamic Finance domain can be found, making this region appropriate for the context of this study. Other factors for selecting these countries include their size, maturity, data quality and availability, besides the global significance of their Islamic banking sector. Also, the Southeast Asian banking sector has been transforming since the past twenty years particularly in its operating environment. Furthermore, this region has been a hub for the Islamic finance expansion. Hence, this region is appropriate for this study's context.

The sectors of Islamic banking in Malaysia and Brunei are among the most progressive and adept ones globally (Sajna and Nairoos 2018). Meanwhile, Indonesia has the biggest Muslim population (Sajna and Nairoos 2018). Among the examined countries, Malaysia is the first that implemented the actual standard Islamic banking, making this country the birthplace of the most advanced system of Islamic banking worldwide (Lebdaoui and Wild 2016). Meanwhile, owing to its large Muslim population, Indonesia has the biggest Shariah-based banking products, whereas Singapore has been known as Asia's financial bed beside its diligence in becoming the financial hub of Islamic banking (Lebdaoui and Wild 2016). Venardos (2012) added that in Asia, the industry of Islamic banking is attracting foreign investors all over the world. Relevantly in Southeast Asia, the future of Islamic banking and finance is bright because this region is where approximately 60% of the world's Muslim population is living, in addition to the presence of an expanding middle class possessing strong economic and financial fundamentals.

## ***2.2 Conceptual Framework of the Study***

The parameters that influence Islamic Banks financial performance in five countries in Southeast Asia namely Malaysia, Indonesia, Thailand, Brunei, and Singapore were examined in the present study, concentrating on the most significant bank-specific factors namely: assets quality, liquidity, bank size, debt Funding and equity funding. Performance was denoted by bank's profitability which was measured using Returns on assets (ROA) and return on equity (ROE) as proxy. The macroeconomic factors namely inflation, taxation and interest rate and GDP growth rate were included in this study as they have been found to have strong linkage to Islamic Banks' financial performance.

## ***2.3 Dependent Variables***

Financial performance refers to the degree to which financial objectives are being or have been accomplished (Abubakar and Aduda 2017), and it also refers to the execution of financial activity. Meanwhile, profitability is the process of measuring the outcomes of policies and operations of firms, financially. Profitability is also linked to the measurement of the overall financial health of a given firm in a given time period.

Financial performance as the dependent variable are commonly measured using return on assets (ROA) and return on equity (ROE), as in Garcia and Guerreiro (2016) and Naeem and Baloch (2017), Narwal and Pathneja (2016), Sandhu and Singh (2016), Albuлесcu (2015), and Zampara et al. (2017). Similarly, ROA and ROE were used in the present study as proxies of financial performance of banks. Specifically, ROA denotes the earned profits of assets computed as the ratio of net

profit for a year to the overall assets of the same year, demonstrating the effectiveness of bank authority in managing assets management expressed by bank's generation of revenues (Rahman et al. 2015). On the other hand, return on equity (ROE) is the net profit for a year divided by total equity of the exact year, and it entails the income created by the funds from the investment of shareholders.

## 2.4 Independent Variables

The two categories of independent variables used in this study were Bank-specific variables represented by bank size, debt funding, assets quality, equity funding and liquidity, and macroeconomic factors represented by GDP growth rate, inflation rate, tax rate and interest rate (e.g., Naeem and Baloch 2017; Narwal and Pathneja 2016; Sandhu and Singh 2016; Albulescu 2015; Zampara et al. 2017). Bank-specific variables were regarded as the internal factors. The details of both categories are as follows.

### Bank-Specific Variables

Internal determinants or banks characteristic have been known to be significantly influenced by bank policy and management decisions (Ahmad and Noor 2011). These determinants which are as discussed below are: Equity Funding, Debt Funding, Liquidity, and Bank Size.

**Equity Funding:** As the simplest form of ROE, Zulfiqar et al. (2016) stated that equity funding demonstrates the level of efficiency of banks in profiting from the money invested by shareholders. There are two forms of equity financing in the system of Islamic Banking which are *mudarabah* and *musharakah* where the former encompasses a type of partnership where one party makes available the money capital while the other makes available the human capital in business activity to benefit both parties, whereby each will receive an agreed profit percentage, but when losses occur, Khan and Bahtti (2008) stated that the financier (bank) accepts them, while the managing party receives no rewards for the efforts. As for the latter, it encompasses a partnership transaction that involves more than one fund contributor. Both *musharakah* and *mudarabah* were used in this study to proxy Equity Financing.

**Debt Funding:** This debt-based financing is the most common in Islamic bank financing system involving the use of *Bai Bithaman Ajil* (BBA) and *murabahah*. Still, debt financing in the literature of Islamic economics has not been sufficiently examined (Jusoh and Khalid 2013). In this study, this construct was included, proxied by Islamic financial contracts namely BBA (*Bai Bithaman Ajil*), *Murabahah*, *Qard Hassan*, *Ijarah*, *Salam*, and *Isiitsna*.

**Liquidity:** This construct means the ability of bank towards its obligations when due, that is, the ability of bank in managing and financing any contractual or financial obligations and deposit outflows. It defines the level of liquidity risk associated with bank's operation (Khan et al. 2015). Liquidity (LQR) measures Net Loans/Assets (NLTA). When this ratio is increased, bank liquidity will decrease while banking

risk increases (Hamedian 2013). Liquidity risk can be decided by dividing the ratio of total loans by total assets. Sufian (2009) found a projected positive association between profitability and liquidity risk.

**Bank Size:** The size of bank greatly dictates the profitability of bank, and in the context of Islamic bank, size of bank has been found to positively link to banks' profitability. In this regard, the increase in total assets is expected to increase financial performance of Islamic banks.

**Assets Quality:** In essence, assets of banks comprise loans, and investors or depositors, view loan quality of bank as very important because it shows bank's credit worthiness. In this study, assets quality was measured through non-performing loans over total loans.

### External Variables

This study also measured the impact of bank's characteristic on profitability, and the measurement was discretely carried out. Accordingly, the model also considered the external factors which are: inflation, Taxation, Interest Rate and growth of real GDP. These external factors are classed as the external determinants, and are as discussed as follows:

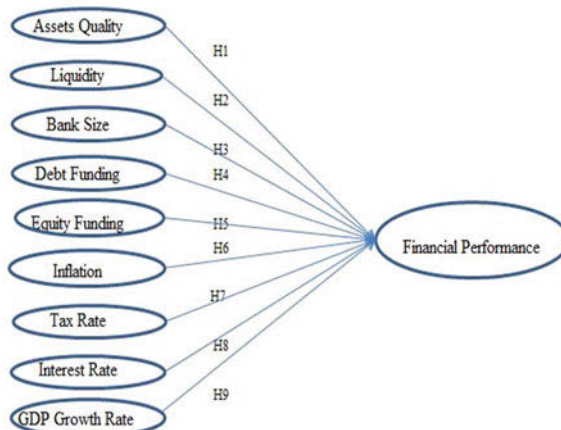
**Gross Domestic Product (GDP):** As a macroeconomic indicator, GDP entails a measure of the total of a country's economic activities. GDP increase impacts banks' profitability positively (Kosmidou et al. 2006; Bikker and Hu 2012; Athanasoglou et al. 2008). Annual growth (GDP) was included in this study as a likely profitability determinant.

**Inflation:** Inflation refers to the annual consumer price index inflation rate. Alexiou and Sofoklis (2009) accordingly reported a positive link between inflation and profitability. As such, profitability of Islamic bank is likely to increase with the increase in inflation.

**Tax Rate:** Tax which is imposed by governments is one method for financing government expenditure, and government utilizes taxation to motivate or inhibit certain economic decisions. For Islamic banks, the imposition of tax can impact their profitability. Unlike their conventional counterparts, Islamic banks, aside from having to pay the government imposed taxes, also have to pay *Zakat* which is a religious tax. Hence, it is important to examine the significance of this tax in affecting the profitability of Islamic banks. Taxes are imposed on citizens and corporate bodies as well.

**Interest Rate:** The present study examined the effect of interest rate on the performance of interest free banks like Islamic banks. Islamic banking operations are theoretically interest free, but in reality, Islamic banks operate in a much larger system that relies on interest as the cost of funds. The Islamic banking framework employs interest rate as the benchmark in establishing the banks' charges to funds users and rewards to depositors (Haron et al. 1994). A model to evaluate the financial performance of Islamic banks was thus proposed in this study. The model is as discussed below (Fig. 1):

**Fig. 1** Research conceptual framework



### 3 Research Methodology and Design

The present study examined the parameters that influence Islamic Banks' financial performance in five Southeast Asian countries namely Malaysia, Indonesia, Thailand, Brunei, and Singapore covering during the 2009–2020 period. The quantitative methodology was applied to achieve the study objectives, and the use of quantitative research allows flexibility in data gathering. Panel data or cross-sectional time-series data were used in this study, which, according to Park (2011), are more informative, provide higher degree of freedom, have greater variability, are more efficient, and have less collinearity among the variables. Aside from providing higher degree of freedom, Brooks (2019) mentioned that the use of panel data results in greater efficiency of estimation. Panel data can be balanced or unbalanced, and thus, cross sectional and time series data must be observed to see if the dataset is balanced (or not). Brooks (2019) relevantly mentioned that data can be considered as balanced if the numbers of observations in the time series are identical for all cross sectional units, otherwise, the data are regarded as unbalanced. As for the dataset utilized in the present study, it is classed as balanced owing to the identicalness of the numbers of observations within the time series.

Data in this study were obtained from banks, and the involved banks in this study were full fledge Islamic banks and subsidiaries Islamic banks offering Islamic banking products and services under the mechanism of Islamic Banking. The DataStream Database and Balance sheet provided the data, and they comprised panel dataset of 28 Islamic banks as follows: 15 Malaysian Islamic banks, 10 Indonesian Islamic Banks, 1 Singaporean Islamic Bank, 1 Islamic bank each from Thailand and Brunei. The data used in this study covered a 12-year period, specifically from 2009 to 2020. There were 336 observations made, symbolized as  $nT$ . The financial performance of the Islamic banks in the studied countries was evaluated based on the internal or

bank's specific characteristic. The study also employed the external or macroeconomic parameters as the country's specific indicators. As for financial performance, it was measured using the combination of average ROA and ROE, and the use of ROA and ROE in combination was to eradicate the effects of each. Specifically, ROA denotes the capability of bank management in transforming assets to net profit. On the other hand, ROE signifies the return flow to bank's shareholders.

### 3.1 Model Specifications

In investigating the effect of the internal and external parameters on Islamic banks' financial performance, the present study employed the following Regression models:

$$\text{Yit(FP)} = \alpha 1 + \beta 1(\text{EF}) + \beta 2(\text{DF}) + \beta 3(\text{LIQ}) + \beta 4(\text{BS}) + \beta 5(\text{AQ}) \\ + \beta 6(\text{GDP}) + \beta 7(\text{INF}) + \beta 8(\text{TX}) + \beta 9(\text{IR}) + \varepsilon$$

The study samples comprised Islamic banks operating in five countries in the region of Southeast Asia, and these banks were all registered in the central banks during the 2009–2020 period. Hence, only listed banks were chosen as the study sample, and such choice was based on the fact that these listed banks are bound by more restricted rules especially in regards to capital, practice, governance and disclosure, and therefore, their financial data have greater level of accurateness (Rashwan 2012). The following Table 1 accordingly presents the measurements utilized in the operationalization of the study variables.

The present study employed PLS analysis to assess the employed structural model, taking into account several suggestions made in past studies, such as Richter et al. (2018), Hair et al. (2017) and Nardi (2018). In testing the hypotheses, the  $R^2$  values and the significance level of the path coefficients were addressed in this study. For the purpose, bootstrapping was used.

Hair et al. (2019) relevantly mentioned that in general, measures applied in secondary data sources are not formed, and over time, these measures are refined for confirmatory analyses. Thus, in PLS-SEM usage in most research contexts, model fit with secondary data measures is not likely to happen. Furthermore, since many measures are artifacts found inside corporate databases, such discoveries associated with PLS-SEM features are useful in archival research such as financial ratios and other firm-fixed factors (Richter et al. 2018). PLS enables researcher to analyse the measurements model concomitantly with the structural model (Nardi 2018).



**Table 1** Measurements of the study variables

| Variable              | Measurement  | References   |
|-----------------------|--|--|
| Financial performance | The average of return on assets and return on equity           | Riaz and Mehar (2013); Hassan and Bashir (2003); Alshaghdari and Bardai (2020a, b)                                       |
| Return on assets      | Net income/total assets (ROA)                                  | Hamid et al. (2017); Asadullah (2017); Nagaraju and Boateng (2018); Javaid and Alalawi (2018)                            |
| Return on equity      | Net income/total equity (ROE)                                  | Javaid and Alalawi (2018); Rahman et al. (2015); Mamatzakis and Bermpei (2015); Alharthi (2016)                          |
| Asset quality         | (Non-performing financing/total assets)                        | Setyawati et al. (2015); Kaushala and Rajapakse (2017)   |
| Liquidity             | Total deposits/total assets                                    | Ramlan and Adnan (2016); Kaushala and Rajapakse (2017); Suppia and Arshad (2019)   |
| Equity funding        | PLSF = (Equity funding contracts/total financing)              | Rahayu and Septiarini (2019); Abusharbeh (2014)  |
| Debt funding          | NPLSF = (Debt funding contracts/total financing)               | Abusharbeh (2014)  |
| Bank size             | The size is measured as the natural logarithms of total assets | Noman et al. (2015); Rashid and Jabeen (2016); Kaushala and Rajapakse (2017); Asadullah (2017); Suppia and Arshad (2019) |
| GDP growth rate       | Annual real gross domestic product, growth rate (%)            | Amzal (2016); Hamid et al. (2017); Asadullah (2017); Nagaraju and Boateng (2018)   |
| Inflation rate        | Consumer price index annual inflation rate (%)                 | Rashid and Jabeen (2016); Amzal (2016); Kaushala and Rajapakse (2017); Asadullah (2017); Nagaraju and Boateng (2018)     |
| Tax rate              | The ratio of total taxes over before-tax profits for each bank | Bashir (2013); Alharthi (2016); Rashid et al. (2017); Hassan and Bashir (2003)   |
| Interest rate         | Lending interest rate (%)                                      | Rashid and Jabeen (2016); Amzal (2016); Jordan (2013)  |

## 4 The Data Analysis and Results

Structural model evaluation using PLS-SEM involves the assessment of the predictive power of the research model through the use of the coefficient of determination score ( $R^2$ ) (Hair et al. 2017; Nardi 2018).  $R^2$  is a measure of the predictive accuracy of the model. Equally, it entails the blended impact of the exogenous variables on endogenous variables. The variance is also measured by  $R^2$  while the variable is defined within all the endogenous constructs (Nardi 2018), making it appropriate as

a measure of explanatory power of the model proposed.  $R^2$  is therefore evaluated as the key objective of PLS, that is, to maximize the described variance inside the endogenous variables. Here, the effect values are between 0 and 1, where: 1 denotes full predictive accuracy. Also, since  $R^2$  is commonly used in many disciplines, a rough guide in its interpretation is as follows (Cohen 1988):  $R^2$  of 0.25 is weak,  $R^2$  of 0.50 is moderate, and  $R^2$  of 0.75 is substantial.

Hair et al. (2017) stated that the  $R^2$  values attained need to be sufficiently high so that the model proposed could achieve the smallest likely level of explanatory power. Hence, the quality of the structural model can be evaluated with the value of  $R^2$ . Here, the value denotes the variance inside the endogenous variable being clarified by the exogenous variables. Figure 2 below accordingly displays the outcomes and as can

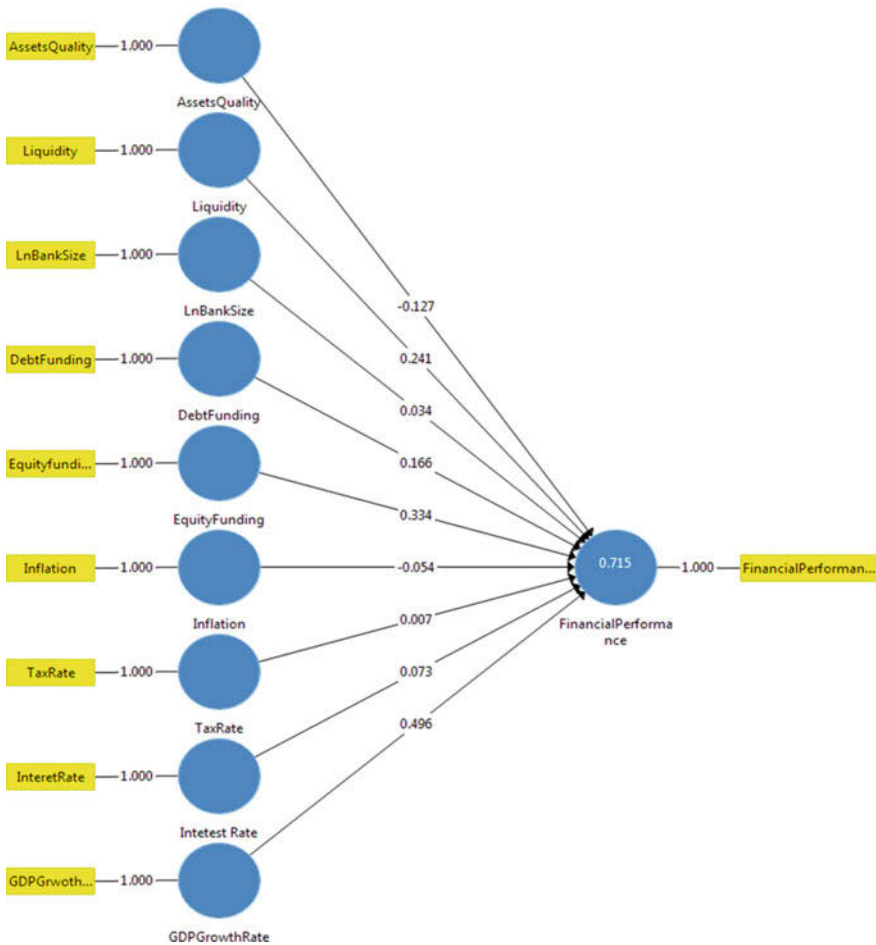


Fig. 2 Model evaluation; path coefficient, and  $R^2$  value

be observed,  $R^2$  of financial performance was 0.715, showing that assets quality, liquidity, bank size, debt funding, equity funding, inflation, tax rate, interest rate, and GDP growth rate in combination represent 71.5% of the variance in financial performance. Based on Cohen (1988), the achieved  $R^2$  value is substantial.

As the last step in PLS-SEM structural model, the conjectured relations were tested, with the use of PLS algorithm and bootstrapping algorithm in Smart PLS 2.0 3M. In PLS analysis, path coefficients are integral. However, Hair et al. (2017) stated that for insignificant paths or disclose signs contradicting the conjectured direction, the previous hypothesis should be rejected. Conversely, if the significant paths show the hypothesized direction, then, the expected causal relationship is supported empirically. Hair et al. (2017) further mentioned that a bootstrapping procedure can be used in evaluating the significance of each path coefficient. Accordingly, path coefficient, and  $R^2$  values of constructs can be viewed in Fig. 2.

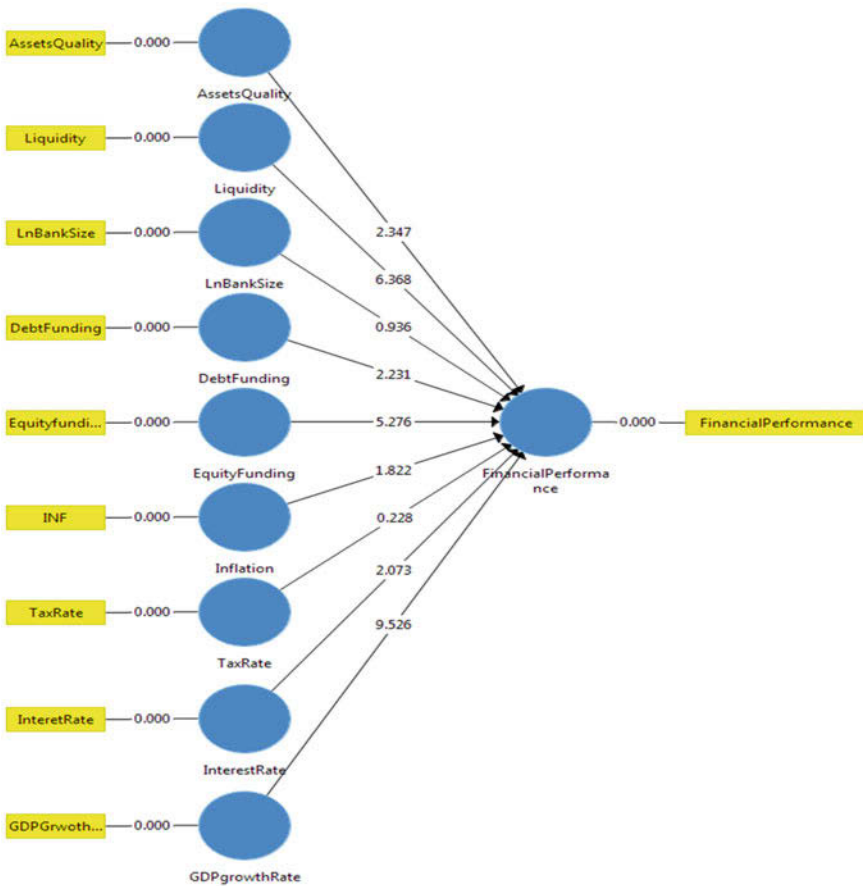


Fig. 3 PLS bootstrapping (t-values) evaluation for the Model of this Study

In this study, the bootstrapping method application in evaluating the path coefficients involved the use of the smallest bootstrap sample of 500. As stated in several studies (e.g., Henseler 2017; Nitzl 2016; Al-Shaghdari and Adeyemi 2020), the number of cases and observations within the initial sample should tally.

For a two-tailed test, the obtained critical t-values in this study were as follows: 1.65 at 10% significance level, 1.96 at 5% significance level, and 2.58 at 1% significance level. Accordingly, the t-value of 1.96 at 5% significance level was followed by the present study. Accordingly, 500 re-samplings with a replacement number from the bootstrapping cases similar to the initial number of sample (336) were used, resulting in standard errors and t-statistics. The bootstrapping outcomes can be observed in Fig. 3.

## 5 Discussion of the Results

The proposed model hypothesized the positive impact of assets quality on Islamic banks' financial performance, and the parameter estimate result is as follows: Assets Quality → Islamic Banks Financial performance, with t-value = 2.347. The outcome supports those of Sanwari and Zakaria (2013), Javaid and Alalawi (2018) and Smail et al. (2018).

The lower levels of loan-loss provisions of Islamic banks may have factored the positive and statistically significant linkage between assets quality and Islamic banks' financial performance. Furthermore, the financing quality of Islamic banks is usually not as reactive to domestic interest rates. Also, the effectiveness of Islamic banks in managing their credit risks contributes to the outcomes as such efficiency increases the financing quality of Islamic banks, making their financing positive and more attractive to the customers. Additionally, asset quality of a bank is dictated by the quality of credit evaluation, collection and monitoring which can be improved by way of collateralization of financing and adequate provisions against potential losses, or inhibition of asset concentration on a single geographical or economic sector. Islamic banks usually have lower financing Loss provision ratio because usually, their credit risk is restrained.

The proposed model hypothesized the positive impact of Liquidity on Islamic banks' financial performance and the parameter estimate result is as follows: Liquidity → Islamic Banks financial performance, with t-value = 6.386. Such outcome supports those reported in Ibrahim (2015), Wasiuzzaman and Tarmizi (2010), Sanwari and Zakaria (2013) and Smail et al. (2018). The fact that Islamic banks generally have high liquidity may have factored the positive and statistically significant link between liquidity and Islamic banks' financial performance. Hence, holding more money allows Islamic banks to increase lending to the public, and this in turn increases the banks' potential in generating income from financing, increasing the profitability of banks. Furthermore, deposits are considered an investment source that allows banks to make returns, and so, increase in deposits within the banks' total assets will increase investments, and consequently, the banks' profitability. Many

studies have reported a significant link between liquidity and financial performance, implying liquidity as a driving force for financial performance.

The proposed model hypothesized the positive impact of Bank Size on Islamic banks' financial performance and the parameter estimate result is as follows: Bank Size  $\rightarrow$  Islamic Banks financial performance, with  $t$ -value = 0.936. Such outcome is in agreement with Rashid and Jabeen (2016), Asadullah (2017), Aziz (2017), and Suppia and Arshad (2019).

The obtained result can be linked the factors of bureaucracy, economies of scale, and agency cost that cause negative relationship between bank size and performance of banks. High agency and operating cost may contribute to the negative relationship between bank size and performance. Equally, the negative relationship may imply failure of management in controlling the cost caused by over expansion. It could also means that diversification causes risk to increase. Also, the fact that the examined Islamic banks were dealing with efficiency issues during the time of the study may also be a factor for such result. Sanwari and Zakaria (2013) mentioned the negative impact of size increase on bank returns because of the decreased effectiveness of management in dealing with increased assets. Relevantly, Abduh et al. (2017) and Waemustafa and Sukri (2016) had reported the insignificant impact of small banks size on the Islamic banks' profitability, and in this study, the examined Islamic banks were mostly of small size, and this may have factored the finding.

In a related study, Rashid and Jabeen (2016) found that small bank size contributes to high costs. Hence, Islamic banks might be focusing on bank size through the increase of their assets and market share. Waemustafa and Sukri (2016) accordingly mentioned that larger banks were more commonly found to show superior performance. This may owe to the fact that banks of large size are likely to have more diversified investment potentials. Also, large banks usually have better management and technology, when compared to smaller banks. In short, bank size impact bank's profitability. However, there is still no affirmation as to what size is the best size for banks. Rahman et al. (2015) reported that in general, the increase in size will have a positive impact, but if the increase in size leads to inefficiency and bureaucracy, then, the impact of size increase will not be positive. In other words, the effect of bank size on profitability of banks is inconclusive.

As for the parameter estimate of Debt Funding  $\rightarrow$  Islamic Banks' financial performance ( $t$ -value = 2.231), the achieved results show positive impact of Debt Funding on Islamic Banks' financial performance, which is line with the results of past studies including Abusharbeh (2014), Waemustafa and Sukri (2016), Abduh et al. (2017) and Faradilla et al. (2017).

The above finding can be linked to the fact that higher debt percentage of Islamic banks actually increases profitability. Debt in Islamic banks is mostly from customer deposits, while a small percentage of debt in Islamic banks is from securities or other borrowing. Also, Islamic banks tend to invest their fund in very liquid investments and low-risk projects. Besides that, Islamic banks in the countries examined were likely to invest based on debt financing rather than equity financing because investment based on debt financing is more lucrative and debt financing has low risk as well. Moreover, *Murabahah* financing increases profitability directly. It also enhances capitalization

ratio and cost efficiency of Islamic banks. Debt financing therefore improves Islamic banks' performance directly and indirectly.

The proposed model hypothesized the positive impact of equity funding on bank performance and the parameter estimates results are as follows: Equity Funding → Islamic Banks' financial performance, with t-value = 5.276. Similar finding was reported in Kuppusamy and Samudhram (2010), Mawardi et al. (2012), Zulfiqar et al. (2016) and Kalim and Arshed (2018).

Equity funding (PLS) was found to significantly affect the performance of Islamic banks in Indonesia, Malaysia, Brunei, Singapore and Thailand, and this finding has been associated with the variance of profit sharing ratio in the examined Islamic Banks owing to their distinct *mudarabah* and *musharakah* financing data. As example, Islamic banks in Malaysia do not employ profit-sharing financing as their financing is based on the *Tijarah* contract. Profit sharing financing is actually applied in Islamic banks in Brunei, Singapore and Thailand but this financing seems unstable in these countries. On the other hand, Islamic banks in Indonesia have the highest value of profit sharing ratio, evidenced by the yearly increase in the *musharakah* and *mudarabah* funding percentage. Islamic banks in Indonesia were thus gaining increased profitability.

Inflation factor showed no significant (negative) relationship with Islamic Banks' financial performance, as evidenced by the parameter estimate results as follows: Inflation → Islamic Banks Financial performance, with t-value = 1.822. Notably, inflation will cause the power of liquidity of the population to reduce, resulting in less amount of deposit made by the population. Also, the population will save less in financial institutions, Islamic banks included. For Islamic banks, this will definitely decrease the source of fund usable for investment.

The proposed model hypothesized the positive impact of Tax Rate on Islamic banks' financial performance and the parameter estimate results demonstrate the insignificant relationship statistically as follows: Tax Rate → Islamic Banks financial performance, with t-value = 0.228. Accordingly, the negative impact of Tax rate on bank performance was implied in studies including Alharthi (2016), Waemustafa and Sukri (2016) and Alshaghdari and Bardai (2020a, b) who concluded that the taxes imposed on banks decrease their profits considerably. The negative impact of tax rate on the profitability of Islamic banks was documented in Hassan and Bashir (2003) as well. Hence, for the examined banks, it can be concluded that tax rate has a negative impact on the Islamic Banks' financial performance in the examined countries. This negative impact was caused by income decrease resulting from increased taxes, and the impact is more significant with the religious requirement towards Islamic banks to pay *zakat*.

The proposed model hypothesized the positive impact of interest rate on bank performance and the parameter estimates results are as follows: Interest Rate → Islamic Banks financial performance, with t-value = 2.073. Alper and Anbar (2011) and Mohamad et al. (2019) reported comparable findings, and the positive link between interest rate and Islamic banks' financial performance demonstrates Islamic banks' usage of interest rate as their standard in determining the charges to impose to users of funds and the rewards for their depositors. Additionally, Hassan and Bashir

(2003) mentioned that high real interest rate will increase loan interest rate, and this affects profitability of banks positively.

The parameter results in the proposed model for GDP Growth Rate are as follows: GDP Growth Rate  $\rightarrow$  Islamic Banks financial performance, with t-value = 35.8099. As can be concluded, GDP Growth Rate positively affects Islamic Banks' financial performance. Similar finding was reported in Hou et al. (2014), Johnes et al. (2014), Tan and Floros (2013), Chortareas et al. (2012), García (2012) and Alharthi (2016).

The finding obtained is justifiable by the fact that the increase in total national income signified by GDP will increase purchase power. Relevantly, purchase power increase will increase saving ability, which means that banks will get more funds from customers, and this means that the investments opportunities of banks will increase, leading to the increase in banks' profitability. Also, the anticipation that the first macroeconomic variable, which is GDP per capita, will affect banking profitability positively through imparting an impact on the factors known to indirectly affect the demand and supply of financing and deposit conditions, is justified. Banks' profitability during the revitalization of GDP growth rate has been known to be increased by the factors of deposit mobilization, credit quality increase and financing creation.

## 6 Implications, Recommendations and Contributions

Especially for researchers, governments, managers, practitioners associated with Islamic banking and finance industry, this study offers valuable information theoretically and practically. For management of Islamic banks, the practices and implementations of the profit loss sharing (PLS) based instruments should be solidified, in order to reduce the gaps. Also, solidification of PLS could improve the economic opportunities of banks with the capacity to contribute to the build-up of capital and to economic growth. Further, small and medium size Islamic banks should improve their Internal Banks Characteristics, and this is an important task for banks management. As increase in bank size was found to positively affect performance, management should therefore contemplate the ways that these small and medium size Islamic banks could increase in size. Also, it is crucial that the levels of asset quality, Liquidity, Debt Funding and Equity funding of Islamic banks are preserved.

The findings achieved in the present study can enrich the body of extant literature, especially concerning the performance of Islamic banks in countries under study, namely Malaysia, Indonesia, Thailand, Brunei and Singapore. Islamic Banks could peruse these findings in determining the most appropriate direction in achieving sustainable evaluation, as well as in achieving competitive environment for their operations in future. Secondly, new avenues for future research are offered in this study as well. Notably, the present study is the first one to have employed PLS-SEM in analyzing the underpinning impact of economic factors and banks specific factors to financial performance of Islamic banks in various countries in combination.

## 7 Directions for Future Research

Several crucial findings in this study can be viewed as implications towards the sector of Islamic banking. Accordingly, several recommendations could be considered for future research. Firstly, limitations in this study should be considered and addressed when carrying out the next related research. Hence, as a start, other Islamic financial institutions should be included in future studies. Among the institutions to be considered include *Takaful*, *Shariah* business unit, unit trust and Islamic mutual funds. Such inclusion not only could make the study results more generalizable to all Islamic financial institutions, but also could increase the understanding on financial performance among Islamic financial institutions.

Additionally, the inclusion of more comprehensive set of variables in the research model could make future research more valuable. In this regard, governance variables could be included as they have been found to impact Islamic banks' financial performance positively. Not only that, the inclusion of these variables could enrich the literature of economic growth, profitability and stability in banking context. These variables are: accountability, rule of law, regulatory quality, political stability, and government effectiveness. Further, future research could empirically test and explore this study's proposed model on different contexts such as country context. Hence, the model could be used in examining countries like GCC countries and Western developed countries, just to name a few. Such research could determine the research model's robustness level across various contexts of countries. It should be noted that the robustness of the model is based on country and region, making it necessary to empirically test the model.

## 8 Conclusion

The present study scrutinized the parameters that influence the performance of Islamic Banks financial operating in five countries located in Southeast Asia namely Malaysia, Indonesia, Thailand, Brunei, and Singapore. A model comprising eight variables known to affect Islamic banks' financial performance with the application of internal and external constructs variable was proposed. The measured internal factors are: Asset Quality, Liquidity, Bank Size, Debt Funding and Equity Funding. The measured external factors are: Inflation, Tax rate, interest rate and GDP growth rate. The interest rate and GDP growth rate were the macroeconomic factors impacting Islamic Banks' financial performance, and performance was measured using ROA and ROE. The banks examined were Islamic banks operating in five countries in Southeast Asia namely Malaysia, Indonesia, Thailand, Brunei and Singapore. It is hoped that this study will pave the way for and become guidance to the more in-depth studies on the topic. This will undeniably enrich the knowledge in the areas of performance and Islamic banking. Also, this study outcomes enrich the knowledge on the performance of Islamic banks and finance in countries under study, and it is



hoped that this study will spark the inculcation of positive growth in Islamic banking and finance sector in these countries.

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# The Commitment of Waqf Institutions to Apply the Governance Principles and the Factors Affecting Them in Saudi Arabia



Omar Farhan and Aznan Hasan

**Abstract** The study aims to analyze the reality of the governance of waqf (Endowments) institutions in Saudi Arabia. It includes defining the governance principles of waqf institutions in KSA, measuring the extent to which the waqf institutions adhere to those principles in addition this study helps determining the predictive factors affecting the levels of commitment to the principles of governance in waqf institutions in KSA. The study relied on mixed research method (qualitative and quantitative). The interviews were conducted with nine experts and specialists in governance and Endowments, and questionnaire was also built, where quantitative data was collected from an intentional sample and collecting responses from 307 people from endowers (waqif), waqf managers, and specialists in waqf institutions, then the data were tested using SPSS and Smart-PLS. The study concluded the formulation of five principles of governance in the waqf institutions: the availability of an effective framework related to governance, the protection of the rights of the endower and the beneficiaries from waqf, the definition of the powers and responsibilities of the guardian council, the level of transparency and disclosure, and the protection of the rights of stakeholders. The results showed that all axes and paragraphs had a general arithmetic average greater than 4.00 and an approval rate higher than 80%, indicating the importance of these axes to adhere to the principles of governance in waqf institutions in KSA. It also revealed predictive factors affecting levels of commitment to applying the governance principles, as the results showed the presence of demographic variables influencing statistically significant differences in the total commitment to the principles of governance. These factors are represented in the age of the waqf, the bodies supervising the waqf institutions, the number of members of the council guardian, and the periods of convening of the council of guardian; While the variables: the size of the endowment, the type of endowment, according to its banks or according to its origin, have no significant effect.

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O. Farhan (✉) · A. Hasan  
Institute of Islamic Banking & Finance (IiBF), International Islamic University Malaysia,  
Jalan Gombak, 53100 Kuala Lumpur, Malaysia

A. Hasan  
e-mail: [haznan@iiu.edu.my](mailto:haznan@iiu.edu.my)

**Keywords** Governance · Waqf · Waqf institution · Corporate governance

## 1 Introduction

Awqaf are considered one of the fundamental Islamic economic systems that played a crucial part in the development of Islamic communities in numerous aspects of life due to the unique characteristics of the waqf system, the most important of which are continuity and permanence. The waqf sustainability is the essence of its effectiveness, which contributes to the development and service of societies. Therefore, the waqf giving continues and its origin remains. Governance is one of the modern administrative trends, which emerged as one of the systems affecting the augmentation of the efficiency of companies, achieving its transparency, and preserving the rights of stakeholders. Recently, the non-profit sector in general, and the waqf sector in particular, have shown a greater interest in using governance and its standards, so that this significant societal sector can benefit from this effective tool in developing its performance and attaining enhanced growth. The greatness of Saudi Arabia's Islamic Awqaf distinguishes it and the presence of distinct Waqf institutions that deserve analysis and study. Saudi Vision of 2030 emphasizes the role of the non-profit sector, including Awqaf, in achieving development. This vision emphasizes the importance of implementing governance in business regulation.

This study develops special governance principles that are compatible with the nature of the activities of waqf institutions and tests the levels of commitment of Waqf institutions in KSA to these principles. This research looks also into the extent to which each of the governance principles influences total commitment to governance, as well as the factors that influence it.

### 1.1 Problem Statement

Many problems emerged in the governance of waqf institutions including, the lack of clarity of the principles of waqf governance that can be relied upon when applying governance practices in waqf institutions. Also, there is a lack of a mechanism to measure the level of commitment to implement the principles of governance in Saudi. Furthermore, knowing the extent of Saudi waqf commitment to these principles. The issue of not knowing the independent factors that influence the extent to which the waqf institution is committed to applying governance principles also arises.

Accordingly, the study aims to solve these problems by answering two questions:

- What is the commitment of Waqf institutions to apply the principles of governance?
- What are the main factors that affect the level of commitment to the principles of governance in the Waqf institution?

In this context, this study will first monitor and analyze the reality of the governance of waqf institutions in Saudi Arabia. Then, it reviews and analyzes its experiences and measures the level of commitment of waqf institutions to apply the governance principle. After that, it will study the predictive factors affecting the levels of commitment to applying the principles of governance in these institutions.

## ***1.2 Methodology***

This study relied on the mixed research method, both qualitative and quantitative. Some other relevant references and sources that are important in the subject of the study were used. Besides, the personal interviews focused on collecting the necessary information to develop governance principles for Waqf institutions and building predictive factors affecting the application levels of governance principles in Saudi Waqf institutions.

The other part of the study curriculum is the field part, through which we extracted the most recent developments and changes on the ground. The researchers chose personal interviews and the questionnaire form as the two primary techniques to achieve the study's objectives and answer its questions. They are regarded as the most appropriate instruments in mixed research to achieve the study objectives.

Interviews were conducted with 9 experts and specialists in governance and awqaf. They were interviewed through 5 main axes that aim, to develop the questionnaire form and to know the principles of waqf governance and the factors that affect the extent to which waqf institutions are committed to their application.

After completing the construction of the questionnaire, the non-random (intentional) sample was selected by distributing the questionnaire to endowers, waqf managers, and executive directors in waqf institutions in Saudi Arabia for their knowledge and professional experience in the governance of waqf institutions. The first in the management and organization of awqaf in Saudi Arabia. Where the study included the opinions of 307 specialists in waqf institutions, in order to identify the difference in viewpoints among the members of the study sample.

The collecting information tool was used after proving the validity of the tool through the validity of the arbitrators and the test of the Pearson correlation coefficient and the split-half method (the two halves of the test) to find out the internal validity of the questionnaire items (content validity) of the experimental sample. Alpha-Cronbach coefficient was used to estimate the reliability for a random sample of the target audience in this study to collect information and thus obtain valuable results. The results were analysed and interpreted deeply and comprehensively through the study model, which was tested using SmartPLS version 3.0 statistical software. Additionally, this program measures measurement model and structural model analysis (path analysis). The measurement of the standard model focuses on evaluating reliability and validity, while the measurement of the structural model measures and evaluates path analysis and path coefficients to determine the impact

of governance principles. Waqf institutions at the level of overall governance of Waqf institutions in the Saudi Arabia.

### ***1.3 Literature Reviews***

A number of studies dealt with the issue of waqf governance and its principles with different methodologies, some of which can be briefly reviewed as follows:

Both Elasrag (2012) and Bousselma (2013) confirmed in their research that governance is an important entry point for the development of Waqf work. Both confirmed that the application of governance principles has a role in developing Waqf institutions. Both studies depended on the descriptive-analytical approach. Bousselma (2013) concluded that Waqf institutions lead to achieving a balance between economic and social goals, which leads to the efficient use of resources and the establishment of the values of justice, accountability, and transparency. Al-Omar and Al-Ma'ud (2014) focused in their research on clarifying the most important rules of governance in maintaining the Waqf and its institution, and the study focused on the governance of the Council of Guardians and the Executive Management. General principles and rules for awqaf were formulated, which are represented in seventeen principles. Al-Mehrej (2016) reviewed with a fundamental approach the concept of governance, its types, fields, and role in the organization of Awqaf. The study relied on the descriptive approach based on induction and analysis as well as on the comparative approach between the Saudi system and the Jordanian law. Al-Salahat (2018) also aimed in his research to determine the standards of governance that can be applied to waqf entities, and to clarify some of the applications of governance to waqf systems and operations. It also dealt with the most important variables affecting the governance of endowment institutions, the role of governance tools in achieving transparency, and the goals of endowers. His research elucidated seven principles of endowment governance, namely: transparency, accountability, fighting corruption, empowerment, responsiveness, management style, and preserving the rights of endowers (waqif). Alomair's study (Alomair 2018) aimed to compare and evaluate governance and accountability practices in three types of Saudi Waqf institutions, one of which is a private waqf, the second is a general waqf, and the third is a mixed waqf. In addition, the study tested the theory of the emergence of stakeholders in waqf institutions. It concluded that the waqf deed is one of the most essential governance documents in the waqf institutions, and the board of trustees is considered as the most important organizational unit in the Waqf institution. Fatoum's study (Fattoum 2020) identified administrative problems in waqf institutions in Algeria and how the principles and standards of corporate governance applied by these institutions for solving existing problems. This study tested the impact of the adoption of corporate governance principles by Waqf institutions on the development of Waqf management. Although the previous literature (Darmadi 2013; Srairi 2015; Abdullah et al. 2014) dealt with the levels of disclosure of the principles of governance in Islamic financial institutions, there is a lack in measuring the levels of compliance with the



principles of governance in these institutions (Sulaiman et al. 2015). Furthermore, it found that all the studies performed in this field have focused mainly on Islamic banks and no other Islamic financial institutions. In this context, we find that some of these studies have only measured the level of disclosure of corporate governance principles in Islamic banks (Darmadi 2013; Srairi 2015; Abdullah et al. 2014). Meanwhile, other studies have expanded to study the factors that affect the levels of disclosure of governance principles in Islamic banks (Darmadi 2013; Srairi 2015; Abdullah et al. 2014; Sulub et al. ).

Concerning measuring the level of commitment to the principles of governance by Waqf institutions, we find a complete lack of this type of study in the previous literature. Most of the studies that dealt with the aspect of Waqf governance discussing the importance of applying the principles of corporate governance by Waqf institutions and developing some principles of governance that are compatible with the nature of the Waqf institution, entity as we mentioned earlier.

The importance of the current study is that it measured the extent to which waqf institutions comply with their governance principles, as well as studying several factors that are expected to affect the levels of commitment to these governance principles. Furthermore, to our best knowledge, this is the first research as a field study of the reality of waqf governance in Saudi Arabia. Therefore, this study will be a distinguished scientific addition, and will also be a useful guide for in-depth studies in the aspects of governance for awqaf institutions in Saudi Arabia in particular and the Arab and Islamic world in general.

## 2 Theoretical Framework

### 2.1 *Waqf Concept*

The most prominent definition is that waqf is the bequeathing the property and dedicating the fruit (Ibn Qudamah 1994). This definition is one of the most famous and comprehensive definitions dealing with the concept of waqf. Recently, the waqf has also been known by various definitions, the most important of which are withholding money and donating its benefit (AAOIFI: Sharia'ah Standards 2020). While, the General Authority for Awqaf in Saudi Arabia clarified that the types of waqf are GAA (1437): A) Public Waqf: a conditional waqf on a specific public good, in person or by description. B) Private Waqf (Family): a conditional waqf on a specific offspring or relatives by a person or by description. C) Common Waqf: a waqf whose condition is shared by more than one type of waqf.

## 2.2 Governance Concept

Governance has become of great importance at the local and global levels. Governance and its applications arose in the private sector, especially in joint-stock companies, to preserve the rights of shareholders and owners and prevent conflict of interests. Therefore, we find that the concept of governance is often associated with corporate governance, then governance applications moved to the government sector and the non-profit sector. Governance can be defined as:

The (UNESCAP) defined a good governance as a good process of decision-making and the process by which decisions are implemented (or not implemented) (UNESCAP: What 2009). While the Organization for Economic Co-operation and Development (OECD) defines governance as: “that system through which companies directed and managed, and through which the rights and responsibilities between various parties such as the board of directors, managers, shareholders, and other stakeholders defined, and it defines the rules and procedures for making decisions related to the affairs of the company, as well as defining the structure through which the company’s objectives, means of achieving them, and mechanisms for monitoring performance set (OECD: The OECD Principles of Corporate Governance 2004; Alareeni 2018a, b; Hamdan et al. 2017).

In Saudi Arabia, the Corporate Governance Regulation defines governance as the rules for the leadership and direction of the organization, which include mechanisms to regulate the various relations between the board of directors, executive directors, shareholders, and stakeholders by setting special rules and procedures to facilitate the decision-making process and to impart a character of transparency and credibility to it to protect the rights of shareholders, and stakeholders, and to achieve fairness, competitiveness, and transparency in the market and business environment (SCGR 2019; Ali Saad et al. 2020; Alsuwaigh et al. 2020).

## 2.3 The Concept of Waqf Governance

Several definitions of the concept of waqf governance have been issued, the most important of which are the following:

1. The system through which direction and oversight are performed to ensure the achievement of the institution’s vision, mission, and objectives by defining responsibilities, obligations, and relations with all concerned parties (Ministry of Awqaf and Religious Affairs 2016; Alsuwaigh et al. 2020; Mohammed Nasar et al. 2020).
2. The systems and regulations that govern the relationships between the main stakeholder and which affect the performance of the waqf institution and methods of decision-making (Al-Omar and Al-Ma’ud 2014).

3. A management system for operations and procedures of the awqaf within the endowers conditions, the waqf interest, and community development (Al-Salahat 2018).
4. A set of rules and procedures govern the relations between the parties affecting the performance of the waqf institution. It is possible through following up and monitoring the performance of the board guardian and the executive management, and the efficient and optimal use of its resources to achieve the conditions of the endowers, the benefit of all stakeholders, and contribute to achieving the economic and social development of the community within a framework of transparency, justice, accountability, and responsibility (Al-Omar and Al-Ma'ud 2016).

From governance and waqf definitions, the concept of waqf governance can be defined as the rules and procedures that control the roles and responsibilities of the parties affecting the performance of the waqf institution in order to achieve the purposes of the endowment. Waqf governance aims to improve the capacity of waqf institutions and increase their value, impose effective control over the performance of waqf institutions, and strengthen accountability. Moreover, it purposes to evaluate the performance of senior management, enhance accountability, and raise the degree of confidence in it, increase the trust of endowers, and enhancing the rights of beneficiaries from waqf (Al-Mawaquf alayhim).

#### ***2.4 Governance Parties in Awqaf***

Governance is concerned with identifying and clarifying the main parties (stakeholder) in organizations and clarifying the relationship between them. Governance is concerned with identifying and clarifying the stakeholder in organizations and the relationship between them. Therefore, it should be elucidated the stakeholder in awqaf. The stakeholder in the awqaf can be recognized through the pillars of the waqf mentioned by jurists, in addition to the stakeholder to the waqf institution consequently, the stakeholder to the governance of awqaf are:

1. The formula (Waqf declaration): the word used by the waqif and indicates the meaning of the waqf.
2. The waqif (endower): the person who donated the endowed money.
3. Endowed money (waqf): money or endowed property.
4. Beneficiaries: they are the category, persons or entity beneficiary of the endowment, which benefits from the endowment proceeds and its yield.
5. The waqf manager or the guardian's council: it is the one who supervises the waqf and takes care of its reconciliation.
6. The executive administration: it is the body responsible for implementing the directives of the beholder in operating the waqf, its investment, its maintenance, the disbursement of its proceeds, and so on.

7. Stakeholders: they are those who have a beneficial relationship with the waqf institution, including employees, customers, financiers, suppliers, contractors, other contractual bodies, and the community.
8. Relevant bodies: means other than the above supervisory bodies.

In order to benefit from the model of corporate governance principles and to guide it in developing the principles of governance of awqaf, a comparison (or interview) should be made between the stakeholder in waqf institutions and their counterparts in companies, as shown in Table 1.

**Table 1** Interviewing stakeholder in Waqf Institutions with their counterparts in companies

| Joint stock companies          | Waqf Institutions                         | Statement   |
|--------------------------------|---|---|
| Founders                       | The endowers                              | The originator or founder of the organization or entity   |
| Board of Directors             | The Waqf Manager (the guardian’s council) | The entity responsible and accountable to other parties for the financial and administrative performance, with the main difference being that the overseers are not owners like the board of directors, but their supervision and direction work converges with the role and responsibilities of the board of directors.  |
| Memorandum of Association      | The formula “Waqf deed”                   | Entity creation document, specifying its size and activity  |
| Contributors                   | Beneficiaries                             | By virtue of the Waqf’s revenues accruing to them, as the establishment of the Waqf is for the purpose of benefiting the endowed. This is supported by what was reported by some of the jurists of the Maliki and Hanbali school of thought that the guardianship or guardian’s council over the waqf is for the endowed on them or for whom they choose, if the endowed is appointed and the waqf is not specified as the waqf manager (Abu-Zahra 2012). |
| Capital                        | The endowed assets                        | The origin of money that invests and grows and has returns, while preserving it   |
| Executive Management           |   | There are no differences that affect or reflect on the principles and practices of governance   |
| Interested parties/authorities |   |   |
| The relevant authorities       |   |   |

Sources Al-Mehrej (2016) and Farhan et al. (2020)

## 2.5 Principles of Waqf Governance

When defining and formulating the principles of governance in awqaf, it should proceed from the nature and characteristics of awqaf, reflect on this with a comprehensive view of all aspects of legal and economic awqaf on the one hand, and the principles of theoretical governance on the other. In addition to help benefiting from the practices and studies related to the principles of endowment governance, it is possible to rely on the principles of corporate governance in formulating the principles of governance of awqaf by analysing these principles and matching them to the nature and characteristics of waqf institutions (Al-Mehrej 2016).

Because of the growth of awqaf, their increasing development, and the interest of legislation and laws in developing the performance of the waqf system, many systems and regulations issued to ensure the application of governance in various aspects of the awqaf, such as:

- The guiding principles for the governance of institutions providing Islamic finance services were developed by the Islamic Financial Services Board. That constitutes the regulatory framework for the work of Islamic banks and financial institutions (Elasrag 2016).
- The study of Al-Omar and Al-Ma'ud (2014) identified 13 principles of waqf governance, while the Al-Salahat study (Al-Salahat 2018) identified 7 principles.
- The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) issued Standard No. 11 waqf Governance. This standard proposes guidelines related to the legal and institutional governance of awqaf and waqf-based institutions. It purposes to enhance the core values of awqaf and its governance practices, which, in turn, will be reflected in improving the effectiveness and efficiency of waqf operations. Furthermore, maximizing the revenues and returns achieved on waqf assets and assets in the short term, and their growth and long-term sustainability.

The principles of governance of waqf institutions can be formulated by being guided by previous practices and studies, as well as by the principles of corporate governance issued by the Organization for Economic Cooperation and Development and the Group of Twenty (OECD/G20) (OECD [24]) and the most prominent practices in the field of governance in Saudi Arabia, in the following principles:

**The first principle—Availability of an efficient framework related to governance:** Waqf institutions are characterized by the existence of a regulatory framework, where Islamic Shariah is the framework that controls the actions and transactions related to the management of waqf affairs. The books of jurisprudence have clarified the controls of the establishment of awqaf and its pillars. All those to strengthen the establishment of the waqf project, its continuity, and control its management (Al-Muhanna 2013).

**The second principle—Protecting the rights of the endowers (waqif) and the beneficiaries (Al-Mawaquf alayhim):** One of the most important principles of governance is the preservation of the rights of shareholders, and this applies

perfectly to the waqf foundation for the category of endowers; because they are the main shareholder in the institution, Therefore, it is necessary to implement the conditions and directions of the endower in the waqf from preserving its assets, the management mechanism, the method of choosing the waqf manager, and the mechanism for distributing the waqf proceeds. There are many cases in which the endowment waqf manager was dismissed due to his failure to protect the rights of endowers.

**Principle Three—Determining the Powers and Responsibilities of the Guardian Council:** In its management and operation, awqaf depend on the agency theory. Where the waqif entrusts the waqf manager (or the Council of Guardians) to take over the affairs of the waqf and achieve its goals and conditions for which the waqf has established. Therefore, determining the responsibilities of the Council of Guardians is one of the most important and sensitive principles in waqf institutions since the Guardian Council is the representative body of the endower and the body responsible for the waqf management or operation (Al-Omar and Al-Ma’ud 2014).

**Fourth principle—Provide transparency and disclosure requirements for administrative and financial performance:** The waqf institution depends on the presence of trust and credibility between the stakeholders, which requires a commitment to transparency and disclosure in its administrative work and financial dealings, with the opportunity to be reviewed by the technical or supervisory authorities. This principle includes the disclosure of the most prominent reports and financial results in accordance with the considered accounting standards, the entitlements of all employees of the waqf institution, a statement of the mechanism for managing the waqf assets, and the method of distributing returns between the waqf banks, the beneficiaries, and the investment of the waqf. Additionally, to publish the addresses of the waqf institution means of communication and the names of its employees (Al-Omar and Al-Ma’ud 2014).

**Fifth principle—The role and rights of stakeholders:** The governance framework confesses the rights of stakeholders in waqf institutions, which allows them to take an active role in governance applications. This includes respecting the rights of the stakeholders that deal with the endowment entity in a way that makes everyone who deals with the endowment feels confident and secure. One of the basics of applying governance in the waqf is to control the relationship between the various stakeholders. That is through addressing the problem of conflict of interest. Therefore, those interested called for the application of governance in companies. This applies to waqf institutions that conflict of interests requires the affiliated member of the organization to disclose his private interest, which requires him to abstain on his own from participating in the Council’s vote on this matter, in the application of the minimum level of transparency (Al-Mehrej 2016).

## ***2.6 Governance of waqf Institutions in Saudi Arabia***

There are many supervisors' civil awqaf in Saudi Arabia. Commonly, the principal supervisor of waqf institutions is the General Authority for awqaf, additionally, the General Authority for Guardianship of the Funds of Minors, and Personal Status Courts. These authorities derive their powers and responsibilities from the following laws:

- The system of the General Authority for Awqaf, issued by Royal Decree No. (M/11) on 8/12/2015 AD.
- The system of the General Authority for Guardianship of the Money of Minors and the Like, issued by Royal Decree No. (M/17) dated 04/11/2006 AD.
- The Law of Pleadings (Part 13/Chapter Two: Awqaf and Minors), issued by Royal Decree No. (M/1) dated 25/11/2013 AD.

This gives a clear indication of the presence of high supervision and control by government agencies on awqaf, which is expected to have a positive impact on the level of governance in waqf institutions. The authorities and responsibilities of these authorities can be presented in Table 2.

## **3 Data Analysis and Discussion**

### ***3.1 Normal Distribution of the Data (Normality Data)***

The multicollinearity test was examined using the Collinearity Diagnostics by calculating the Tolerance coefficient for each of the independent variables. Then the Variance Inflation Factor (VIF) was found, as this model is a measure of the effect of the correlation between the independent variables (Hair et al. 2014; Ellis and Levy 2009). It is noted that the VIF of all the variables were not exceeded (5), and within the range of 2.780–4.726. While the tolerance period was higher than 0.10 within a varied range of 0.175–0.348. Therefore, it can be concluded that the study model does not suffer from the problem of linear interference, as the correlation between the variables is not statistically significant and very low. This indicates the strength of the study model in interpreting and determining the effect on the dependent variable.

The results of the Correlation Matrix (Table 3) showed that the correlation coefficient between all variables does not exceed 0.80. They were within the range of 0.779–0.701, indicating the absence of multicollinearity between the independent variables (Hair et al. 2014), which is the absence of a strong linear relationship between the independent variables that exceed 0.80.

Since there was no Multicollinearity in the data, the normality was tested by calculating the Skewness and the Kurtosis coefficients. As mentioned by several researchers, the Skewness and Kurtosis coefficients must be ranged between  $\pm 2.58$  for the data to be characterized by a moderate distribution (Hair et al. 2014).

**Table 2** Powers and responsibilities of the authorities

| Power or liability  | The entity that has the authority   | Legal reference (regulatory)   |
|---|---|--|
| Waqf documentation (issuance of Waqf deed)  | Personal status courts (judicial)   | Articles 33, 219, 220, 221 of the Law of Pleadings Law   |
| Register all awqaf  | General Authority for awqaf   | Article 5 of the Law of the General Authority for awqaf, and the third paragraph of Article 221 of the Law of Legal Pleadings  |
| Inventory of all suspended funds  | General Authority for awqaf   | Article 5 of the Law of the General Authority for awqaf  |
| Manage the awqaf (if the stander specifies the manager of waqf)   | Manager of waqf is determined by the endower  | Paragraph one (a) in Article Five of the General Authority for awqaf' Regulations  |
| Manage awqaf (if the stander does not specify the manager of waqf)  | The General Authority for Awqaf is responsible for overseeing charitable and joint Awqaf (regarding the charitable part)  | The first paragraph of Article 4 and Article 5 of the General Authority for Awqaf' Regulations   |
|   | and the General Authority for guardianship of the funds of minors and those in their equivalents is responsible for overseeing the atomic and joint awqaf (regarding the atomic part) | Article 10 of the Law of the General Authority for Guardianship of the Funds of Minors and Their Equivalents   |
| Establishment of awqaf through crowdfunding   | General Authority of awqaf  | Paragraph 6 of Article 5 of the General Authority for awqaf' Regulations   |
| Supervisory oversight of awqaf  | General Authority of awqaf  | Paragraph 5 of Article 5 of the General Authority for awqaf' Regulations   |
| Supervising the work of the manager of waqf   | The general authority for Awqaf (except for what is concerned with nuclear Awqaf that are supervised by the General Authority for guardianship of the funds of minors and the like)   | The second paragraph in Article 4 of the Law of the General Authority for awqaf, and Article 10 of the Law of the General Authority for Guardianship of the Funds of Minors and the Like |
| Consent to sell, exchange, transfer, or mortgage swqaf, (or other operations related to the endowed property) | Personal status courts  | Article 223 of the Law of Pleadings Law  |

(continued)



**Table 2** (continued)

| Power or liability                          | The entity that has the authority   | Legal reference (regulatory)   |
|---|---|--|
| Filing and moving the case before the court | General Authority for Awqaf   | Paragraph five (f) in Article Five of the General Authority for Awqaf' Regulations   |
|   | The general authority for jurisdiction over the funds of minors and their equivalents | Article Thirty of the Law of the General Authority for Guardianship of the Funds of Minors and Their Equivalents   |
| Adjudication and adjudication of disputes   | Personal status courts  | Article 33 of the system of legal pleadings, and the second paragraph in Article 13 of the system of the General Authority for Guardianship of the Funds of Minors and Their Equivalents |

**Table 3** The correlation matrix between the study variables

| Variables                      | Effective governance framework | Beneficiaries' rights | The powers of the waqf manager | Transparency and disclosure | Stakeholder rights |
|--------------------------------|--------------------------------|-----------------------|--------------------------------|-----------------------------|--------------------|
| Effective governance framework | 1                              |                       |                                |                             |                    |
| Beneficiaries' rights          | **0.733                        | 1                     |                                |                             |                    |
| The powers of the waqf manager | **0.719                        | **0.742               | 1                              |                             |                    |
| Transparency and disclosure    | **0.701                        | **0.709               | **0.716                        | 1                           |                    |
| Stakeholder rights             | **0.751                        | **0.729               | **0.767                        | **0.779                     | 1                  |

\*\* Correlation is significant at the 0.01 level (2-tailed)

It can be seen that the obtained Skewness coefficient and the Kurtosis coefficient were within the range of (-1.427—0.814) and (0.713—2.573), respectively, suggesting that the data was characterized with a normal distribution, Since the obtained values did not exceed the permissible ( $\pm 2.58$ ) (Hair et al. 2014).

**Table 4** Explained total variance

| Component | Initial eigenvalues |               |        | Extraction sums of squared loadings |               |        |
|-----------|---------------------|---------------|--------|-------------------------------------|---------------|--------|
|           | Cumulative %        | % of variance | Total  | Cumulative%                         | % of variance | Total  |
| 1         | 52.663              | 52.663        | 23.698 | 24.481                              | 24.481        | 11.016 |
| 2         | 58.051              | 5.388         | 2.424  | 41.852                              | 17.371        | 7.817  |
| 3         | 62.379              | 4.328         | 1.948  | 53.701                              | 11.849        | 5.332  |
| 4         | 65.920              | 3.541         | 1.593  | 62.083                              | 8.381         | 3.772  |
| 5         | 68.826              | 2.906         | 1.307  | 68.862                              | 6.743         | 3.034  |

### 3.2 Exploratory Factor Analysis (EFA)

The results of the factor analysis using the main components method proved that the vocabulary of the questions is loaded according to the expectations. It indicates the presence of five underlying factors for the study variables (the effective framework for governance, the endower and the beneficiaries' rights, the powers and responsibilities of the waqf manager, transparency, disclosure in the waqf institutions, the rights of stakeholders, and the relevant supervisory authorities).

The ratio of global saturations extracted from the outputs of the exploratory factor analysis was good for all study paragraphs. The acceptable ratio exceeded 0.50 and was within a range of 0.547–0.804 as the highest saturation value. That confirms the convergent validity of the study paragraphs and variables (Kline 2014). The remaining paragraphs were 44 items out of the total of 47 items. Three paragraphs were deleted, which are: the endower and the beneficiaries' rights 1, the endower and the beneficiaries' rights 2, and the effective framework 4.

Table 4 shows the total variance explained for the study variable with its five axes, arranged as follows: (1) Protection of the rights of stakeholders and relevant supervisory, (2) The level of transparency and disclosure in the waqf institutions, (3) The level of defining the powers and responsibilities of the Council of Guardians (4) Provides an effective framework with principles of governance, (5) protect the rights of the endower and the beneficiaries.

### 3.3 The Standard Model for all Study Variables Using Smart-PLS

Figure 1 shows the global saturation of all study paragraphs. Based on the findings, the percentage of factor saturations extracted from the outputs of the standard factor analysis was excellent for all study items. The acceptable percentage was within the range of 0.607 and 0.907, which confirms the convergent validity.

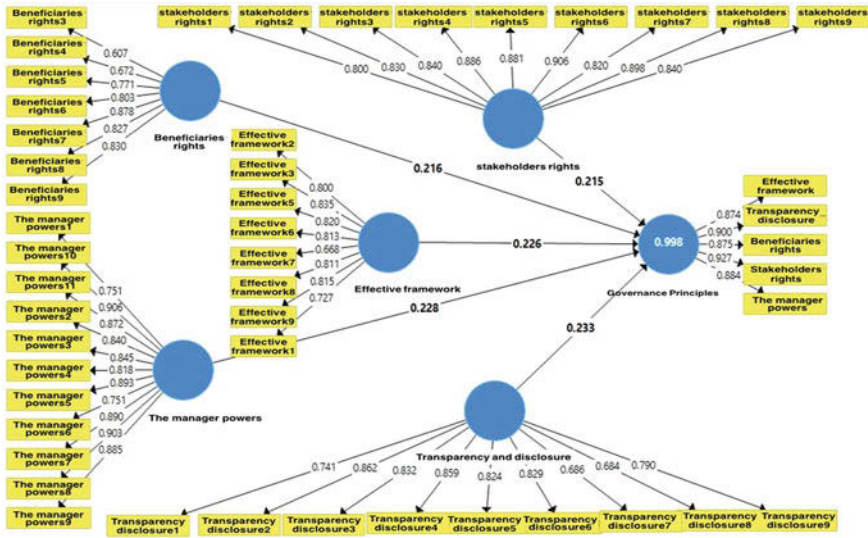


Fig. 1 Schematic path of the Standard Factor Model (Algorithm) extracted from SmartPLS results for all model variables

### 3.4 Reliability Test and Extracted Mean of Variance

The mean of the extracted or combined variance (AVE) for all study variables extracted from SmartPLS outputs was higher than the accepted value of 0.50, which is good and acceptable. It ranged between 0.600 as the lowest value and 0.733 as the highest value. The reliability of Cronbach’s Alpha for the main study and the composite reliability coefficient (CR) for all study variables were also tested. The composite reliability coefficient (CR) for all variables was higher than 0.60, which was acceptable and good (Barclay et al. 1995; Fornell and Larcker 1981), and the values ranged between 0.967 as the highest value for the determination level axis. The powers and responsibilities of the Guardians Council and the value of 0.912 as the lowest value of the composite stability coefficient for the variable of protecting the rights of the endower and the beneficiaries, which are good and high values. The value of Cronbach’s Alpha was also higher than 0.60 and ranged between 0.962 for the variable of determining the powers and responsibilities of the Council of Guardians and 0.886 for the variable of protecting the rights of the endower and the beneficiaries.

**Table 5** The discriminant validity of the study variables (SmartPLS Outputs-Version 3)

| Variables                        | Effective governance framework | Stakeholder rights | Transparency & disclosure | Beneficiaries' rights | The waqf manager powers |
|----------------------------------|--------------------------------|--------------------|---------------------------|-----------------------|-------------------------|
| General framework for governance | 0.788                          |                    |                           |                       |                         |
| Stakeholder rights               | 0.755                          | 0.856              |                           |                       |                         |
| Transparency and disclosure      | 0.708                          | 0.782              | 0.792                     |                       |                         |
| Beneficiaries' rights            | 0.731                          | 0.746              | 0.722                     | 0.775                 |                         |
| The waqf manager powers          | 0.722                          | 0.770              | 0.721                     | 0.740                 | 0.825                   |

### 3.5 *Discernment Validity of the Variables*

Table 5 shows the Discriminant Validity of the study variables and axes. The results indicated that the correlation ratios between the independent and dependent variables within the model ranged between 0.782 as the highest correlation, which was between stakeholder rights, and transparency and disclosure. While the effective framework was associated with transparency and disclosure (0.708) as the lowest correlation between the independent variables. It also indicated that all variables were characterized by Discriminant Validity, where all the correlations moved away from complete fusion among themselves and moved away in their correlations from the critical ratio (complete fusion) specified at a ratio of (0.80).

### 3.6 *The Structural Model (Path Analysis) to Test the Study Questions*

To test the main questions of the study, Path Coefficient analysis using the PLS-Smart program was used to verify the impact of the availability of the effective framework for governance, beneficiaries' rights, the powers of the waqf manager, transparency, disclosure, and stakeholders' rights on the dependent variable, the level of commitment to the principles of governance. Figure 2 presented Schematic path of the Algorithm factor  $R^2$  of the dependent variable, which displays the level of commitment to the principles of governance.

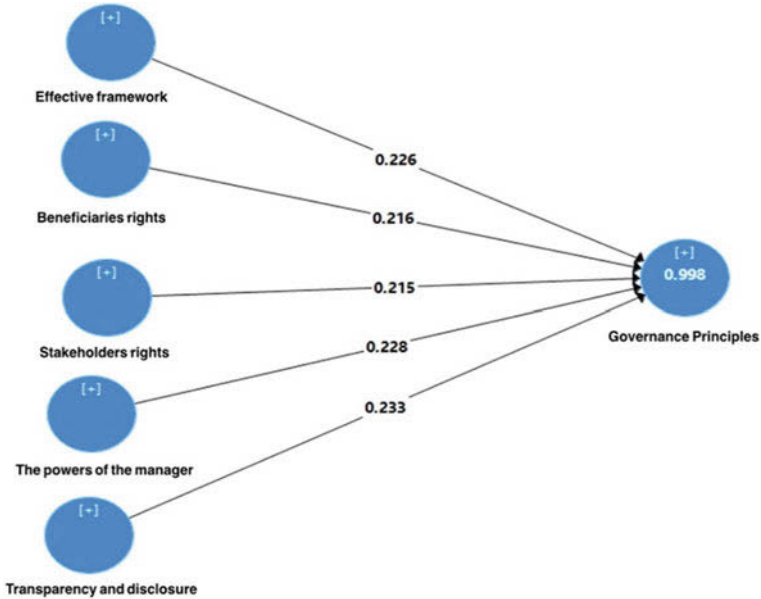


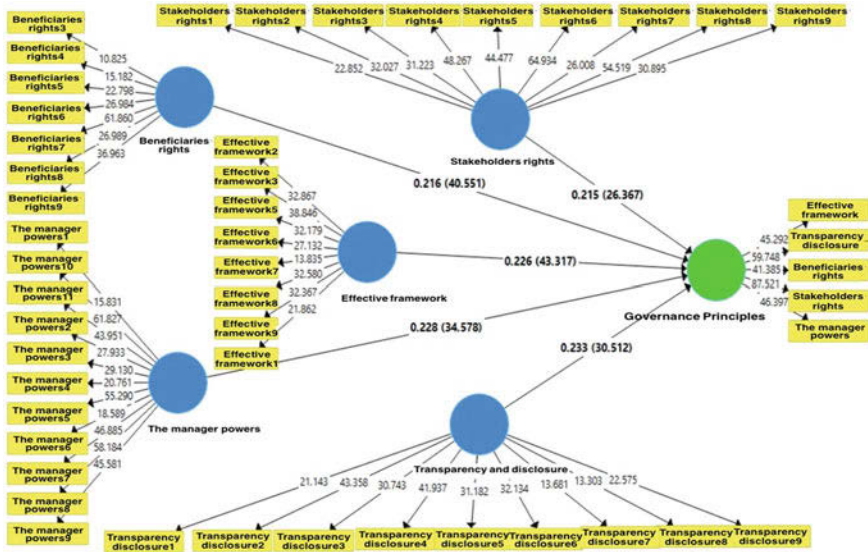
Fig. 2 Schematic path of the Algorithm factor R<sup>2</sup> of the dependent variable shows the level of commitment to the principles of governance

## 4 Results and Discussion

### 4.1 Results of Measuring the Extent to Which the Principles of Governance of Waqf Institutions Contribute to Influencing the Level of the Overall Commitment to Governance in Waqf Institutions

The SmartPLS program was used in the constructivist model to test the questions related to the governance axes developed for the waqf institutions. Figure 3 presents a schematic path of the bootstrapping factor model to test the main questions deduced from the results of SmartPLS between the independent variables and the dependent variable. Table 6 presented the results, which demonstrated a strong positive effect with statistical significance at the level of significance ( $\alpha \leq 0.05$ ) for all axes of the study and the total commitment to the governance of waqf institutions in Saudi Arabia.

According to these results, the five principles of governance have a significant impact on the overall compliance with the principles of governance, which indicates that the importance of all these principles in determining the level of compliance with the principles of governance in Saudi waqf institutions.



**Fig. 3** Schematic path of the bootstrapping factor model to test the main questions deduced from the results of SmartPLS between the independent variables and the dependent variable

**Table 6** The results of the sub-question between the variables of the principles of commitment to governance and the governance of Waqf institutions (SmartPLS Outputs)

| Variables  | Standard estimates | Estimation error | Statistic T-value | P-value | Results                   |
|--|--------------------|------------------|-------------------|---------|---------------------------|
| Effective governance framework => Awqaf governance | 0.226              | 0.005            | 43.862            | 0.000   | Acceptable and impressive |
| Beneficiaries' rights => Awqaf governance          | 0.216              | 0.005            | 40.786            | 0.000   | Acceptable and impressive |
| The powers of the waqf manager => Awqaf governance | 0.228              | 0.007            | 34.143            | 0.000   | Acceptable and impressive |
| Transparency and disclosure => Awqaf governance    | 0.233              | 0.007            | 31.246            | 0.000   | Acceptable and impressive |
| Stakeholder rights => Awqaf governance             | 0.212              | 0.008            | 26.812            | 0.000   | Acceptable and impressive |

**Table 7** Commitment to the principles of Awqaf governance in Saudi Waqf institutions

| No | Variables (the principle of governance)  | Arithmetic averages | Commitment % | Standard deviations |
|----|--|---------------------|--------------|---------------------|
| 1  | Provides an effective framework with governance principles                     | 4.2052              | 0.841        | 76,098              |
| 2  | Protecting the beneficiaries from waqf and their rights                        | 4.1287              | 0.825        | 72,362              |
| 3  | The level of defining the powers and responsibilities of the Guardians Council | 4.2188              | 0.843        | 72,036              |
| 4  | The level of transparency and disclosure in waqf institutions                  | 4.1839              | 0.836        | 77,339              |
| 5  | Protecting the rights of stakeholders and relevant supervisory authorities     | 4.2103              | 0.842        | 78,376              |

#### ***4.2 The Results of the Levels of Commitment to the Principles of Governance for Waqf Institutions***

Table 7 summarizes the compliance percentage for each of the five governance principles in waqf institutions in Saudi Arabia. The findings showed a large total average of the compliance percentage with the principles of governance, which amounted to 83.7%. The Table 7 also reflects large percentages of commitment to implement all the principles of governance developed in the Saudi waqf institutions. That indicated the high level of organization and management in these institutions, which, in turn, reflects positively on their economic and social competencies, which achieves the maximum benefit for all stakeholders.

#### ***4.3 Demographic Factors Affecting the Compliance of Waqf Governance***

The interviews with experts in governance and awqaf the fields have identified predictive factors that affect the levels of commitment to the governance principles in waqf institutions. And the results of the quantitative analysis using the one-way ANOVA test showed that there were statistically significant differences at a moral level less than 0.05 for each of the demographic factors: the age of the waqf, the supervising the waqf institutions, the number of members of the guardian's council, and the sessions of the board of guardians on the total commitment to the principles of governance

by waqf institutions in Saudi Arabia. On the other hand, the results showed there is no statistical significance for the following factors: the size of the waqf, the type of the waqf according to its origin, and the type of the waqf according to its banks.

This part summarizes the statistically significant differences that were found in the responses of the study community towards the levels of commitment to the principles of waqf according to the awqaf demographic factors, which represent the independent factors in this study, as shown in Table 8.

**Table 8** Statistically significant differences according to demographic factors

| Study axes  | Waqf lifetime | The authority supervising Waqf institutions | The number of members of the guardian's council | The meeting periods of the guardian's council | Waqf size | The type of Waqf according to its origin | The type of Waqf according to its banks |
|---|---------------|---|---|---|-----------|--|---|
| Provides an effective framework with governance principles                      | ✓             | ✓   | ✓   | ✓   | ✓         | ✓  | ×                                       |
| Protecting the beneficiaries from waqf and their rights                         | ✓             | ✓   | ×   | ✓   | ×         | ×  | ×                                       |
| The level of defining the powers and responsibilities of the guardian's council | ✓             | ✓   | ✓   | ✓   | ×         | ×  | ×                                       |
| The level of transparency and disclosure in Waqf institutions                   | ✓             | ✓   | ✓   | ✓   | ✓         | ×  | ✓                                       |
| Protecting the rights of stakeholders and relevant supervisory authorities      | ✓             | ✓   | ✓   | ✓   | ×         | ×  | ×                                       |
| Total commitment to the principles of governance                                | ✓             | ✓   | ✓   | ✓   | ×         | ×  | ×                                       |



## **5 Study Contribution and Recommendations**

### ***5.1 Study Contributions***

The results show the study contribution to develop of governance principles appropriate to the activity of waqf institutions and the measurement of levels of commitment to them by waqf institutions in Saudi. In addition, this study contributes to building a set of predictive factors that affect the level of commitment of waqf institutions to the principles of governance developed. Furthermore, it contributes to study the impact of factors Predictive levels of commitment to the governance principles.

### ***5.2 Study Recommendations***

There is a need for an accurate determination of the set of factors that are expected to have impact on the commitment levels of waqf institutions to the application of corporate governance principles. Although this study built seven predictive factors affecting the levels of commitment to applying the governance principles, the result of data analysis showed only four factors that have a significant impact on the commitment levels. Furthermore, it found that the remaining factors did not have any significant effect. In the sense that there is a need to expand more through future research concerning accurate identification of a set of factors that significant affect the levels of commitment to applying the governance principles in waqf institutions.

To ensure the maximum levels of commitment to the governance principles by the waqf institutions, it is recommended that the developed authorities of the waqf institutions in Saudi conduct a more comprehensive study to determine the set of factors that have a substantial impact on the levels of commitment to apply the governance principles in the waqf institutions.

Through this important measure, the developmental bodies of waqf institutions will be able to develop governance principles that are more appropriate for waqf institutions, as they will consider the set of factors and circumstances that influence (negatively and positively) fundamentally on the levels of commitment to apply the principles of governance in waqf institutions, and thus ensure the achievement of the maximum possible commitment to these principles.

### ***5.3 Recommendations Specifications***

Despite the essential contribution of this study to the previous literature and policymakers related to the waqf sector, there are some limitations and limitations to it.

First: The fact that the study was conducted on the Saudi environment, this means that it has limitations and geographical restrictions. Meaning that its results are more suitable for the Saudi environment.

Second: The principles and predictive factors affecting the levels of application of governance principles were developed through personal interviews with nine local experts in the governance and awqaf fields. It means that the study results need to be developed to reflect the compatibility or the international dimension through other interviews conducted with international experts in Governance and awqaf fields.

Despite the limitations of the study, the study provides a rich source of empirical and non-experimental data on the principles of governance for the endowment sector and indicators of levels of commitment to them and factors affecting their application for a large number of waqf institutions in Saudi Arabia.

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# Enhancing Socio-Economic Potential of Zakat Through Donation-Based Crowdfunding Model in Bangladesh



Asif Adnan, Habeebullah Zakariyah , Sadman Rahik, and Abdul Mazed

**Abstract** This paper aims to develop a model to enhance social justice through zakat in Bangladesh by utilizing donation-based crowdfunding. Whilst being one of the most populous Muslim majority countries, Bangladesh still lacks a centralized policy regarding zakat. Zakat collection and distribution in Bangladesh follows an informally coordinated model which is inefficient. In the absence of required government engagement, solutions are needed to optimize the underutilized potential of zakat.

To accomplish this objective, this research employs a qualitative approach. It is found that integrating zakat into a donation-based crowdfunding model is an innovative Islamic fintech approach that can contribute towards improving the socio-economic potential of zakat in Bangladesh. The proposed model has the potential to improve the socio-economic situation of zakat recipients, which can lead to an increased standard of living and enhancement of social justice. The results of this study may enhance the efficiency of zakat and its effects in Bangladesh.

**Keywords** Bangladesh · Crowdfunding · Social justice · Zakat

## 1 Background of Study

Bangladesh is a developing Muslim country where poverty has been a chronic and major social issue. With a population of nearly 170 million, Bangladesh is a densely populated country. Although significant progress has been made in the past few decades, one in five people still lives below the poverty line with a national poverty rate of 21.8% (Chowdhury 2020). Apart from poverty, there also exists a high degree of income inequality. Despite a steady increase in GDP, the income gap has increased between the top 10% situated in the upper end of the income spectrum and the bottom

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A. Adnan (✉) · H. Zakariyah · S. Rahik · A. Mazed  
IIUM Institute of Islamic Banking and Finance (IiBF), International Islamic University Malaysia,  
53100 Kuala Lumpur, Selangor, Malaysia

H. Zakariyah  
e-mail: [habzak@iium.edu.my](mailto:habzak@iium.edu.my)

40% (BBS 2019a, 2019b). On top of that, from 2010 to 2016, the lowest 5% of households have seen their income share decrease to 0.23% from 0.78%.

The COVID-19 pandemic has further amplified these problems. Due to the pandemic, approximately 16.4 million additional people have fallen into poverty. 13% have lost their jobs. Many others have moved or will move dangerously close to the poverty line. It is estimated that at the end of the pandemic about 25% of the population will be under the poverty line. (BIDS 2020).

Redistribution of wealth & resources is one of the primary concerns of social justice. Social justice, sometimes also referred to as distributive justice, promotes fair distribution of goods & services in society. This idea of social justice is inbuilt within the Islamic paradigm. It has been argued that Islamic economics is rooted in a paradigm that takes as its main goal socio-economic justice (Chapra 1996). Within the Islamic paradigm, the problem of poverty is addressed through social justice, solidarity & charity (Bremer 2013). Zakat plays a significant role in this respect, as it is a mechanism for redistribution. Zakat constructs a conducive ecosystem for social justice by contributing to poverty alleviation, improvement in living standards and raising the dignity of the 'have not's'.

There exists a dire need for effective poverty alleviation tools in Bangladesh. Although the government along with NGO's do have programs to deal with this issue, they are far from being adequate. Zakat can play a role in this regard. However, the potential of Zakat in Bangladesh is underutilized. Crowdfunding coupled with the Islamic principle of Zakat can supplement the effort by the government and NGOs in this aspect.

While crowdfunding is a relatively recent fundraising mechanism, it has rapidly gained worldwide attention. The crowdfunding market continues to grow globally. In 2019, the market size of crowdfunding worldwide was 13.93 billion USD. It is estimated to reach nearly 40 billion USD by 2026. Currently the largest markets for crowdfunding are North America followed by Asia. The principle features of crowdfunding are generally in accordance with the boundaries set out by the sharia, and do not seem to have any major contradiction with it.

This research is structured as follows. The first three sections present the background of the study, its methodology and the problem statement respectively. The next section looks at the concept of zakat in Islam. It also explores the relationships between zakat and social justice as well as the concept of zakat management within an Islamic paradigm with a particular focus on the prevailing model of zakat management in Bangladesh. A survey of literature relating to crowdfunding, its history, the current size of the global market and different types of crowdfunding is presented in the fifth section. Specific attention is given to donation-based crowdfunding. The sixth section lays out the proposed model, while the seventh section explores the potential impact of the model on enhancing social justice in Bangladesh. Section eight presents the limitations of the study as well as scope for future studies. The research is concluded in the final section "Conclusion".

## 2 Methodology

This paper is qualitative in nature, whereby the researchers depend on library research, relevant literature, articles and books to meet the study's objectives as well as its aims, which is to establish an approach for utilizing Zakat fund through a donation-based crowdfunding model in order to enhance social justice in Bangladesh. Textual analysis is applied by the researchers in order to gain a better understanding of the phenomena, and also in seeking answers and to provide clear pictures of the current condition of the zakat fund management. It also assists in developing a potential model towards the application of Zakat endowment in the context of Bangladesh. The Qualitative method is also chosen to attain a comprehensive understanding of crowdfunding, its different types so that the researcher is able to explore the potential of implementing such a model in the context of Bangladesh.

## 3 Problem Statement

A significant part of the population of Bangladesh lives near the poverty line. There also exists deep wealth inequality. Zakat plays a major part in helping Muslim societies improve their socioeconomic situation & achieving social justice. Zakat's overarching aims are to eliminate inequalities, establish human rights, social justice, and motivate the vulnerable in Muslim societies by reducing poverty (Azmi 1991). It is accepted that zakat plays one of the most significant roles in the equitable distribution of income in Muslim societies in terms of reduction of poverty, social justice and human well-being.

Zakat funds in Bangladesh may have contributed as much as 21% of the Annual Development Plan (ADP) in 1983/1984, and up to 43% of the ADP in 2012/2013, totaling USD 438.33 million in 1983/1984 and USD 3142.28 million in 2012/2013 (Shaikh 2016). About USD3.0 billion can be raised solely by zakat and used to alleviate poverty (Gamboa et al. 2020). However, the prospects of utilizing zakat for helping the poor are still to be properly explored in Bangladesh. Bangladesh has neither a law nor a well-structured body for collecting and distributing zakat (Ali and Hatta 2011). Given the inefficiency in utilizing zakat for socio-economic goals, it is reasonable to conclude that zakat fund collection and distribution require alternative new mechanisms that can improve its socio-economic impact and enhance social justice.

Crowdfunding has the potential to play a crucial function in terms of improving the socio-economic impact of Zakat in Bangladesh. Online crowdfunding has emerged as an effective new channel for citizens & community contribution. The population of Bangladesh is overwhelmingly Muslim with strong religious sentiment. There exists a deep tradition of donating and fundraising which is very similar to crowdfunding in approach, with the Islamic concept of zakat & sadaqah playing an important role. On top of that, a rapidly increasing number of social media users (58.77 million as of

July 2020, Statista), adoption of mobile financial services (7.33 million daily transactions as of December 2019, Financial Express) as well as a rising urban middle class in Bangladesh offers the possibility of making crowdfunding accessible to a significant portion of the population. For a country with roughly 170 million inhabitants and a deep-rooted culture of altruistic efforts and donations, the possibilities of crowdfunding remain largely underexplored.

Crowdfunding has the potential to serve as a shariah-compliant zakat mobilizing mechanism by playing the role of an intermediary between donors and zakat beneficiaries (asnaf). In addition, during the COVID-19 pandemic, numerous researchers, practitioners, academics, and civil society organizations have been exploring remedies and they recommended that one of the most effective strategies is to utilize the potential of Islamic financial technology (Islamic FinTech). Donation-based crowdfunding can utilize this potential of Islamic FinTech by coupling it with the concept of Zakat.

## 4 Concept of Zakat in Islam

Zakat is an act of financial worship obliged by Allah S.W.T for the Muslims, to assist unprivileged people of the community. Zakat is listed as the third fundamental pillar of Islam. It is an obligatory act prescribed through various verses from the Quran and statements of hadiths.

Zakat is one of the most effective wealth-sharing alternatives for increasing resources in the Muslim economy and ensuring a minimum quality of life. Zakat literally means “growing,” “rising,” “purity,” and “benefit”. In the Holy Quran, the word “Zakat” appears thirty times, twenty-seven of which is mentioned in the same verse with prayer. According to Ibn Taymiyyah, by giving Zakat an individual purifies himself spiritually as well as his wealth (Abdel-Baqi 2007).

Contemporary and classical scholars have defined zakat in various ways in accordance with the Shariah. According to classical scholars, Zakat can be defined as, “a due right on particular asset/property or objects in specific amounts with respect to the item’s passage of one year and satisfaction of Nisab status” (Ahmed 2004). In Islamic law, zakat is a mandatory specific amount of money to be paid to a selected group of people, by every grown Muslim, male and female, if they are mentally sound, free and financially capable.

Zakatable wealth is not limited to only those assets that are expressly addressed in the Quran and Sunnah. According to Qardawi, Zakatable wealth includes salaries, earnings that are owed, profits and other incentives or any such thing that can be assessed by means of sales such as rent and dividends (Dakhoir 2019). Generally, Zakat will be measured if the Zakatable item’s value reaches the amount of Nisab as prescribed in Sunnah including the completion of Hawl (the amount being in possession for one lunar year). The Zakat rate is fixed at 2.5% for currency, gold, silver and commercial goods. While the zakat ratio is 10% for agricultural goods that are rain-fed or nourished by streams and springs. However, if agricultural goods are

harvested by water drained from dams by humans, other animals or machinery, the rate of zakat is 5% (Khan 1995).

Zakat is also prescribed as a major source of income for the Muslim economy since it has a direct impact on the life of Zakat recipients. Only a specific class of people called Asnaf, are entitled to receive zakat. Asnaf are categorized into eight groups derived from the Quran in chapter Tawba, verse number 60. The poor and the needy, who are unable to meet their essential needs are listed at the top. Zakat helps the recipients to attain satisfactory living conditions and basic needs such as food, housing, clothes, health care and schooling. For purposes of showing moral and financial support, new converts to Islam are also entitled to receive zakat, regardless of their economic status. The Amil can also benefit from the Zakat fund. Zakat can also be given to free someone from slavery and to individuals who are in debt. Finally, Muslims who are fighting in the way of Islam, as well as travelers, are mentioned as Zakat recipients (Islam and Fakhruddin 2019).

#### ***4.1 Zakat and Social Justice***

The concept of social justice, as understood within an Islamic paradigm, is at the heart of Islamic economic thought. Zakat plays a pivotal role in this aspect. Zakat's role in establishing social justice through attaining and maintaining economic justice and social harmony has been noted by many researchers (Hassan 2007).

Apart from being a religious obligation, zakat also has a number of social and economic implications. From a social point of view, it motivates the well-off to fulfill their responsibilities to society, while providing a mechanism for alleviating poverty (Mannan 1986). Economically, it functions as a redistributive system that works against a morbid concentration of wealth in a few hands (Dhar 2013). Thus Zakat has the potential to achieve social justice through redistribution of wealth in society.

Zakat provides a unique construct that concomitantly works on both ends of the socioeconomic spectrum. For people possessing a specific level of wealth ('nisab'), zakat mandates a yearly donation to the people who are in need, amounting to a fixed share of their wealth. This restrains the excessive concentration of wealth in the upper end of the income spectrum. In terms of the lower end of the spectrum, Zakat specifies the recipients of the donation (Bremer 2013).

When viewed as a long-term strategy for poverty alleviation, zakat can free its beneficiaries from the clutches of poverty and increase their standard of living. Ibrahim (2006) sees zakat to be a very effective tool of wealth redistribution, one which establishes social justice while also making resources available to the impoverished.



This redistributive function of Zakat and its implications on the socio-economic situation of the beneficiaries have been noted by researchers. Zakat enhances social justice by stimulating economic growth and bringing the impoverished above the poverty line. Through the redistribution of wealth and resources zakat transforms its recipients into becoming productive contributors to the economy.

Based on an empirical study in Pakistan, Azam et al. (2014) conclude that zakat enhances welfare in recipient households. In another study from Pakistan, Akram and Afzal (2014), show an inverse relationship between Zakat & poverty. Based on the results, they argue that zakat performs a crucial role in alleviating poverty. Zakat has also been found to be effective in facilitating growth avenues that result in improved collective production in society (Muhammad et al. 2013).

More recently, Sumai et al. (2019) found zakat positively affected in poverty reduction and food security in the context of Indonesia. Focusing on West Sumatra, Indonesia, Sari et al (2019) concluded that zakat can reduce poverty, and allows the impoverished to rise above the poverty line. ECM analysis on zakat's effect on economic growth revealed a positive and significant effects of zakat on consumption, investment and economic growth in five Indonesian states (Suprayitno 2020). Anwar and Nabila (2021) showed that zakat positively influences both economic growth as well as consumption.

Evaluating individual wellbeing surveys from Tunisia, and applying a fuzzy approach, Bouanani and Belhadj (2019) found zakat to have contributed to the reduction in the poverty index for seven regions to a significant degree. Khasandy and Badrudin (2019) also found zakat to have had a significant influence on economic growth as well as social welfare. Interestingly, they note that, in order to increase this effect, more user-friendly and transparent methods are needed for the collection as well as distribution of zakat.

After examining how zakat influences economic growth in four countries from Southeast Asia for a period of six years, Mahfuzha et al. (2019) concluded that zakat has a positive impact on economic growth. Similarly, Ben Jedidia and Guerbouj (2021) investigated zakat's effect on economic growth for eight countries over a period of 14 years. The research revealed these countries experienced economic growth stimulated by zakat. They also noted that the efficacy of zakat can and needs to be improved through better mechanisms for the the collection & distribution of zakat.

## ***4.2 Concept of Zakat Management in Islamic Paradigm***

Zakat institutions have fulfilled a critical role in the effective and efficient collection and distribution of zakat. As a component in their economic policy, certain Muslim countries build zakat management systems based on variant approaches. In this section, the various approaches towards managing the Zakat fund used in Muslim countries by Lubis et al. (2019) are highlighted.

Fig. 1 Centralized approach

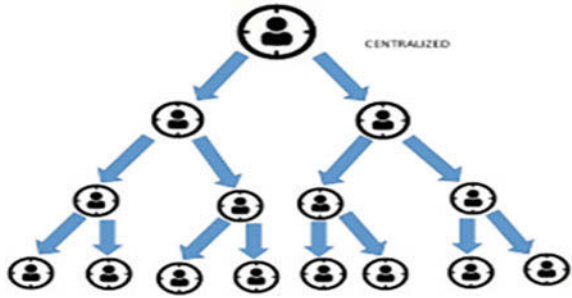
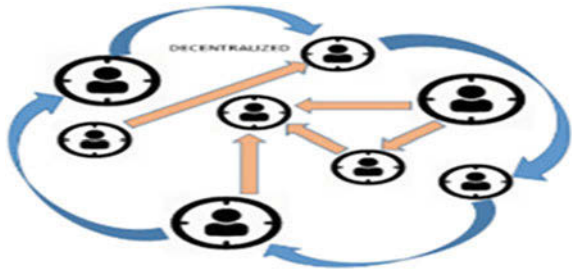


Fig. 2 Decentralized (controlled) approach



**Centralized Approach.** The concentration of power in a limited group of leaders, who control directional aspects and operational activity. The members of the Arab League such as Saudi Arabia, Brunei Darussalam, Jordan, and Morocco are adopting this approach (Fig. 1).

**Decentralized (Controlled) Approach.** Systematic division of authority, which entails an equal distribution of load and responsibility in decision-making. Countries such as Malaysia, the United Arab Emirates and the Arab Republic of Yemen follow this approach (Fig. 2).

**Distributed Approach.** Task transferability is assigned to intermediaries and certain institutions based on particular instruction. Pakistan, Qatar, Kuwait and Bahrain are adopting this method (Fig. 3).

**Delegated Approach.** Assigning any responsibility to other organizations to carry out certain actions and tasks while maintaining ultimate responsibility. This approach is adopted by countries such as Egypt, Indonesia, China, Japan, South Korea, and Libya (Fig. 4).

**Coordinated Approach.** Using technique with flexibility to move between domains to enjoy the benefits with immediate possibilities in a self-contained yet comprehensive manner. Bangladesh, India, South Africa, Ghana and the United States of America are utilizing this method (Fig. 5).

Fig. 3 Distributed approach

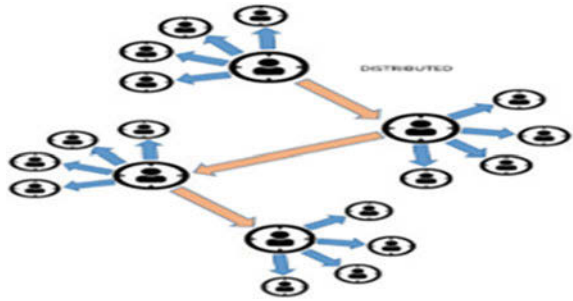


Fig. 4 Delegated approach

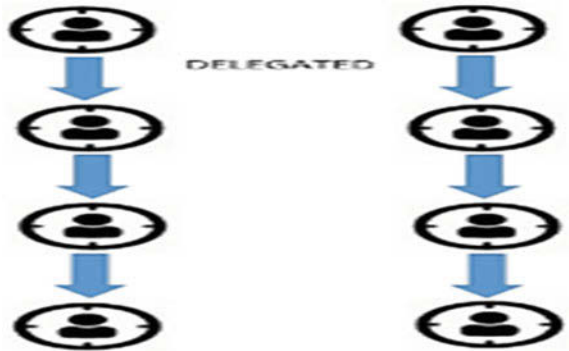
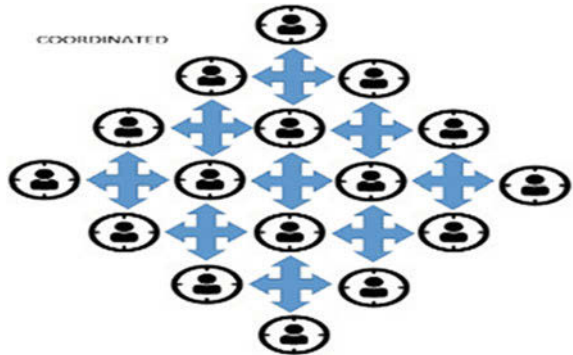


Fig. 5 Coordinated approach



**Supervised Approach.** Using the procedure with observation and guidance of someone during the implementation process. Countries such as Albania, Azerbaijan, Mozambique, Nigeria, Tajikistan, Tunisia and Turkey employ this strategy (Fig. 6).

**Isolated (Unsupervised) Approach.** Self-contained method for controlling and managing accountability in a localised area from beginning to end. Thailand, Cambodia, Vietnam, Kyrgyz Republic, Sudan and Syria are countries under this method (Fig. 7).

Fig. 6 Supervised approach

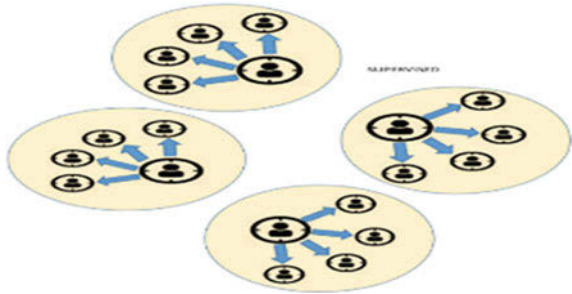
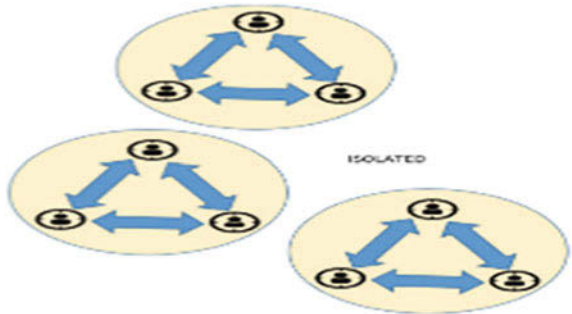
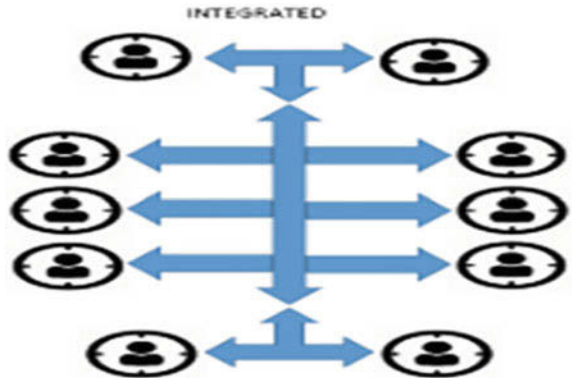


Fig. 7 Isolated (unsupervised) approach



**Integrated Approach.** Achieving the primary goal by splitting the functions and disciplinary fields for maximum efficiency and lowest cost through an agreed-upon approach. Kazakhstan and Singapore employ this approach (Fig. 8).

Fig. 8 Integrated approach



### 4.3 Zakat Management in Bangladesh

Bangladesh is one of the most populous Muslim countries in the world. Nearly one-fourth of Bangladeshi citizens are living under the poverty line. However, Zakat as an instrument of poverty alleviation is still underutilized. This is due to the inefficiency found in the collection and distribution of zakat.

According to Gamboa et al. (2020) about US\$ 3.0 billion can be raised solely by zakat and used to alleviate poverty. However, the prospects of utilizing zakat for helping the poor is still to be properly explored in Bangladesh. Though Bangladesh's government is committed to poverty reduction, Zakat has never been properly considered as a national poverty-reduction policy. (Hassan and Khan 2007). Bangladesh has neither a law nor a well-structured body for collecting and distributing zakat (Ali and Hatta 2011). The Bangladeshi government did not recognize zakat as a poverty-reduction program for the fiscal year 2018–2019 (Bangladesh 2019).

Zakat in Bangladesh is mostly distributed through madrasa (Islamic seminary) based charity activity, personal networks & private sector organizations. There exists a lack of transparency & efficiency in how zakat funds are managed by these institutions. In many cases, some of the private sector players utilize zakat funds in ways which are not approved by the shariah. The government lacks proper policy in utilizing zakat except for a Zakat fund administered under a small organization under the authority of the ministry of religious affairs. The vulnerable & rightful recipients are harmed by these inefficient institutions and policies.

In Bangladesh, Zakat scheme still leaves plenty of space for development as at the governmental level Zakat fund is still not seen as a major economic tool. The non-existence of an institution and lack of collective effort increases practices where Zakat distribution amounts to merely giving some amount of money among the poor and donating clothes or charitable goods (Ali and Hatta 2014).

Following issues were recognised by Osman and Masud (2014) in terms of zakat collection and disbursement process in Bangladesh: lack of awareness of the concept of Zakat, absence of proper knowledge about Zakat calculation, inefficient governance strategy, utilization of Zakat in unproductive sectors, and mismanagement of the zakat institution.

Many of the zakat donors are unaware of how to calculate the amount of zakat. Most of these donors end up donating amounts significantly lower than the actual amount of zakat. Many also pay the same recipient each year, usually a relative or domestic help. Given the inefficiency in utilizing zakat for socio-economic goals, it is reasonable to conclude that zakat fund collection and distribution require alternative new mechanisms that can improve its socio-economic impact.

## 5 Crowdfunding

Crowdfunding is a type of financial technology or FinTech that facilitates the raising of capital through innovative and digital methods (Haddad and Hornuf 2019). As a business tool crowdfunding was initially created to raise money for a certain types of artistic ventures such as band tours, musical projects, films, which are usually not profitable. With time this method was adapted to fund all types of business and entrepreneurial ventures (Mollick 2014). Crowdfunding presents a way for entrepreneurs to get capital from a large number of people where rather than raising large quantities of money from a small group, each person contributes a relatively tiny amount (Belleflamme et al. 2014). This bundling of contributions is enabled through the internet and usually without the presence of standard intermediaries. Thus, crowdfunding can be framed as a sort of participatory activity which takes place online by way of an open call which brings together different sorts of groups and people who partake voluntarily (Alonso 2015). Usually, most individuals contribute small amounts of money to crowdfunding projects. Therefore crowdfunding aims to attract a large number of contributors ready to finance entrepreneurs and small businesses (Lutfi and Ismail 2016).

Crowdfunding is communal in nature. It is a collective effort where individuals come together through the internet to support initiatives by combing their resources (Gajda et al. 2012). It essentially merges principles of crowdsourcing with fundraising practices (Schwienbacher and Larralde 2012) while adding the fintech dimension to it. Crowdsourcing is a type of umbrella term which refers to a concerted effort by a mass of individuals online for a unified cause (Wingerden and Ryan 2011).

According to Shneor and Flåten (2015), crowdfunding platforms serve as a medium of connecting project runners with their potential financiers, while also facilitating transactions among them. European Securities and Markets Authority (2014) contends that crowdfunding platforms capacitate the interaction between a 'crowds of investors' with project owners who present particular projects in need of financing. As crowdfunding has gained popularity, the number of crowdfunding platform have also increased in the past decade. The emergence of these platforms have been facilitated through internet technology which makes two way communication simple and easy. One of the first crowdfunding platforms was ArtistShare. Based in the US, ArtistShare started its journey in 2003. Globally, the most popular crowdfunding platforms today are Kikstarter and Indiegogo.

Crowdfunding platforms generate revenue through commissions. Usually, a percentage of the total amount of capital raised is taken as commission by the platforms (Alonso 2015). Thus crowdfunding platforms function in a way similar to a marketing medium that offers individuals avenues to cultivate interest and appreciation for news projects, products or services, while also giving feedback to project starters.

## ***5.1 Emergence of Crowdfunding***

Crowdfunding is a product of the internet age, however, earlier iterations of similar concepts can be found. The fundamental approach to financing taken by crowdfunding is not new (Spacetec 2014). One famous example is New York's Statue of Liberty (Kazmark 2013). In 1885 there was a shortage of funds which prevented the Statue of Liberty from being completed. The governor of New York refused to contribute city funds for the project. Joseph Pulitzer, the famous publisher, wanted to do a fundraiser via his newspaper. The project encouraged people to donate by giving them 6-inch replicas of the Statue of Liberty for a donation of \$1 and 12-inch reproductions for a donation of \$5. The project managed to raise over \$100,000 in five months. On average, more than 120,000 donors donated less than a dollar (Clarkson 2015).

According to most researchers, the contemporary online crowdfunding movement was started by a British rock band called Marillion. Collecting roughly \$60,000 in contributions from the public through the internet, the band raised funds for a US tour (Sale 2014). Marillion's positive experience paved the way for the formation of ArtistShare.com, an online portal in 2003. The portal was devoted to helping fans collect money for performers on one hand, and as a reward, providing accessibility to the creative process for donors on the other. ArtistShare.com bills itself as the world's first internet crowdfunding platform. ("ArtistShare—About Us" 2013).

## ***5.2 Status of Global Crowdfunding Industry***

Huge transformations in the financial service industry have been brought about by the rapid growth of technology-driven innovation along with an increase on the internet (Kotarva 2016; Zavolokina et al. 2016). As a substitute form of financing crowdfunding is increasingly generating attention and significance all over the globe. What began as random independent fundraising efforts, has now morphed into a multibillion-dollar market. Even though crowdfunding currently exists in 161 countries, the growth and size of the market are mainly driven by three countries, the United States, the UK and China. Although the rate of growth in advanced markets is showing signs of saturation, there still exists many emerging and developing markets who have significant potential in terms of crowdfunding. South Asia is as considered one of the emerging markets for crowdfunding.

### 5.3 Types of Crowdfunding

According to research, there are four core models of crowdfunding: crowd-lending or debt-based, equity-based, reward-based and donation based (Lutfi and Ismail 2016; Mollick 2014). As this study focuses on connecting the donation model of crowdfunding with the Islamic concept of Zakat, here we will take a relatively deeper look at the donation-based model.

**Donation-Based Crowdfunding:** The donation-based model of crowdfunding is the most well-known form of crowdfunding along with the reward-based model. Here contributors provide funding based on a sense of charity or civic motivations, without expecting any sort of return. Contributors do not receive any tangible rewards, rather they partake based on altruistic concerns.

This model of crowdfunding presents a new paradigm in online charity (Gerber et al. 2012). Crowdfunding has simplified raising funds for such causes by blending transaction, communication and information collection in a single easy to follow process, as observed by Belleflamme et al. (2013). By doing so it has brought significant innovation in donation funding. Many have remarked that by combining traditional charity with IT, donation-based crowdfunding in a way, has redefined charity itself (Gleasure and Feller 2017).

Donation-based crowdfunding offers a number of advantages over traditional charity efforts. It allows frees potential donors from the constraints of distance, by allowing them to reach people in need (Tanaka and Voids 2016). It also significantly reduces transactions and coordination costs (Choy and Schlagwein 2016).

## 6 Proposed Model

To improve the effect of Zakat in Bangladesh by integrating it with the concept of donation-based crowdfunding, the researchers propose the following model.

**Platform:** The researchers of this paper propose a crowdfunding platform which connects the donors and the recipients of Zakat. By establishing this connection, the platform fulfills the needs of both donor & recipient. The donor is able to donate his zakat to the proper beneficiaries (asnaf), people who are in actual need. And the recipients are able to receive zakat, without going through the often humiliating process of approaching donors.

The platform will also ensure transparency for both sides. It will be accessible from PC as well as mobile. The platform will generate and store data each time a donation is being made. This data can be used for predictive analysis down the line to come up with more innovative methods of amplifying the effect of zakat.

**Cause Creator:** Individuals, Charity organisations, NGOs, Community leaders & institutions can raise a 'cause' on the platform after signing up as recipients. Once



the due diligence is done & the cause meets the shariah & other requirements, it will be shown on the platform and any prospective donor will be able to donate to it. Cause Creators can raise different types of causes, such as education, healthcare, food support, livelihood support, healthcare, etc. as long as it fits the shariah requirements of Zakat & beneficiaries (asnaf).

As soon as any donation is made, it will be shown on the Cause Creators dashboard, also the cause creator will be notified via email. The dashboard will allow for any required management of activity. Once the target amount of the cause is raised or the duration of the cause is over, the amount will be transferred directly to the Zakat beneficiary's bank or mobile banking account.

**Donors:** Zakat givers can also sign up as Donors. Once they register to the platform they will have the chance to calculate the due amount of zakat for them, through a zakat calculator. Most of the Muslims of Bangladesh follow the hanafi madhab, while there also exists a significant minority adhering to the 'ahlul hadith' school of thought from the Indian subcontinent, who also refer to themselves as 'Salafi'. Donors will have the option to choose from both these two schools of thought. Then the donor can donate to any cause of his liking through the payment gateway. The donor can search for causes in any specific geographical location. Prospective donors can also donate without signing up to the platform by directly paying through the payment gateway.

**Zakat Council:** There will be a zakat council consisting of experts on finance, management, law, strategic planning, marketing, public relations as well as other professionals. The Zakat council will make sure due diligence is being conducted on the causes while also overseeing the day-to-day management tasks.

**Shariah Advisory Council:** On top of the Zakat council there will be a Shariah advisory council consisting of Scholars and experts in Islamic finance. The board will make sure the shariah requirements are fulfilled in terms of collection and disbursement of zakat funds. They will also check whether the causes raised are eligible for zakat.

**Brand Ambassador:** Prominent Islamic personalities & preachers will be representing the platform as brand ambassadors. Their affiliation with the platform will serve to raise awareness among the people about properly observing the Islamic duty of zakat and also to encourage them in using this platform as a viable way to donate zakat (Fig. 9).

By bringing all of these aspects together the model will ensure transparency as well as efficient use of zakat. Which will in turn result in improving the socio-economic impact of Zakat in Bangladesh.

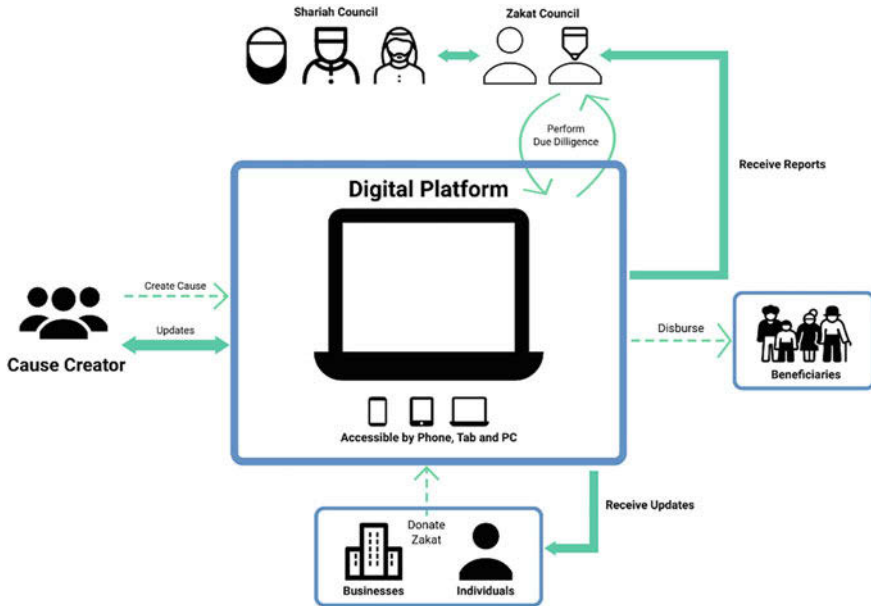


Fig. 9 Proposed model of donation based crowdfunding in Bangladesh by integrating Zakat

## 7 Potential Impact of the Model on Social Justice

The relation between zakat & social justice has been noted earlier in the discussion. Social justice is central to the shariah. Through its redistributive function zakat plays an important role in furthering social justice. Zakat does this by stimulating consumption, expenditure and economic growth. Zakat also enhances people’s wellbeing and lifts the impoverished from beneath the poverty line. It creates an eco-system which nurtures social cohesion and cooperation in society, which in turn amplifies social justice.

These functions of zakat become particularly important in the context of Bangladesh, especially given the fallout from the COVID-19 pandemic. As mentioned before Bangladesh’s economy suffered from deep wealth inequality even before the COVID-19 pandemic. Which was further exacerbated by the global pandemic. In the first three months of the national lock average family income in Bangladesh decreased by 74%. In 2020, South Asian Network on Economic Modeling (SANEM) predicted Bangladesh’s poverty rate may climb as much as 40.9%, effectively doubling, after the outbreak of the pandemic (Welle 2020). Unemployment is also set to rise as much as 3% as the pandemic and subsequent lockdowns have wiped out employment in both the formal and informal sectors. According to a prediction by ILO, 85% of the people engaged in the informal sector were deemed to be extremely vulnerable (Mohiuddin 2020).

These factors have deepened the inequality and have also resulted in the creation of a ‘new poor’—Low-income families with little savings, who have slipped under the poverty due to the pandemic and subsequent measures associated with it (Unnayan Onneshan 2020). According to rapid surveys, almost 77% of the non-poor population who were recognized as vulnerable, have slipped into poverty due to the pandemic (BIGD and PPRC 2020).

The pandemic has increased poverty, unemployment and vulnerability. It has also created a ‘new poor’. Unfortunately, financial assistance has not been adequate. Less than 15% of low-income households received cash assistance from the government, while only 5% received support from NGOs (Rahman and Matin 2020).

There is an urgent need for financial assistance for the people hit hard by the pandemic. Zakat has the capacity to contribute significantly in this aspect due to its strong religious obligation as well as a redistributive mechanism which enhances social justice. However, as noted earlier, traditional methods of zakat collection and distribution are not efficient in realizing zakat’s full potential. In order for zakat to be efficient in its socio-economic role, there need to be better, innovative and more user-friendly methods of zakat collection and distribution. This is especially pertinent for Bangladesh which follows an inefficient, informally coordinated model for zakat collection and distribution. Zakat fund collection and distribution require alternative new mechanisms that can improve its socio-economic impact.

The proposed model, which applies an innovative Islamic fintech by integrating zakat into a donation-based crowdfunding model, can contribute towards meeting this requirement. Utilizing zakat through donation-based crowdfunding can serve as a more efficient mode of zakat collection & distribution. It can create direct connections between the needy and those that are well-off and facilitate the flow of much-needed financial assistance. The model provides a practical tool for limiting over-concentration of wealth and inequality, while also providing social welfare to the poor.

Thus the proposed model has the potential to improve the socio-economic situation of zakat recipients that can lead to an increased standard of living and enhancement of social justice.

## **8 Limitations of The Study and Recommendations**

The research is qualitative in nature. Thus empirical testing of the model is required. Future studies can quantitatively investigate the level of acceptance of the proposed model among the people of Bangladesh. Moreover, although the research has a limited focus on Bangladesh the model proposed can be effective in other countries. Future studies can replicate the study in other Muslim countries which share similar socio-economic contexts. After systematic analysis, the model can be further developed, possible weaknesses identified and necessary modifications can be made. In addition, the research limits its attention to zakat. However, there are other Islamic social finance concepts that can be incorporated into the crowdfunding framework.

Further research may explore the possibility of incorporating concepts such as sadaqa & waqf into crowdfunding. This may lead to novel alternative methods of enhancing social justice through Islamic Fintech.

## 9 Conclusion

Around the Muslim world, the development of Islamic financial technology has experienced remarkable progress. The platform of digital crowdfunding, especially, has come a long way. It is high time for Muslim majority countries like Bangladesh, to harness the socio-economic potential of Zakat by utilizing digital means efficiently and smartly. This will contribute to alleviating poverty and enhancing social justice in the long run. Such an approach will also add to the arsenal of non-banking alternatives for the Muslim community for social mobility and poverty alleviation in accordance with the Shariah, while also providing innovative ways of improving the socio-economic impact of Zakat. Although fintech can help zakat management ecosystems by allowing for more effective and efficient collection and distribution, the necessity of legal compliance, Shariah compliance, accountability, and a security framework are undeniable in the system. Institutional integrity, technological development methods, standardization, certification, and education can all help to achieve this. It is hoped that this research on the application of crowdfunding in terms of Zakat and insights gained from it, can be used as a reference of other Muslim countries.

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# Contemporary Developments in Waqf Beneficiaries—A Case Study of the Awqaf of the United Arab Emirates



Sulaiman Haroon Yaqoob Arab, Habeebullah Zakariyah,  
and Abdulrahman Abdullatif Mohammad Abdullatif

**Abstract** This study aims to investigate the effectiveness of the Islamic waqf system in the contemporary Islamic societies and the significance of applying institutionalized systems for efficient administration and governance of waqf institutions. The study has been classified into theoretical and practical aspects. The theoretical aspect treats the concept of waqf, its classifications, the institutional development of the beneficiaries of contemporary waqf, and the legal and Shariah frameworks governing them. It highlights the major emerging and new waqf beneficiaries in the fields of education, health and relief. On the other hand, the practical aspect conducts a field study of waqf institutions.

The study adopted both the inductive method and the descriptive approach employing the face-to-face interview method for collecting data as well as telephone interviews with interviewees. A number of conclusions emerged from the research, including a keen interest in waqf work and management practises, as well as an emphasis on the supervisory function. In addition, the concept of legislative stalemate was proposed. The study also discovered that current legislation and the renewal of jurisprudence provided waqf banks, as well as the general public, the freedom to develop successful new and creative banks to support their work.

**Keywords** Types of Waqaf · Waqaf banks · Waqaf developments · Waqaf banks fields

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S. H. Y. Arab (✉) · H. Zakariyah  
IIUM Institute of Islamic Banking and Finance (IiBF), Kuala Lumpur, Malaysia  
e-mail: [sulaiman.haroon@iium.edu.my](mailto:sulaiman.haroon@iium.edu.my)

H. Zakariyah  
e-mail: [habzak@iium.edu.my](mailto:habzak@iium.edu.my)

A. A. M. Abdullatif  
Department of Islamic Affairs Sharjah, Sharjah, United Arab Emirates  
e-mail: [abdullatif.mohd@sia.gov.ae](mailto:abdullatif.mohd@sia.gov.ae)

## 1 Introduction

Waqf has contributed—throughout the history of Islam—by playing an active role in the organisation of society and management of its affairs through making financial resources available for meeting the needs of different spheres of life. Being one of the sectors of the Islamic economic system and fulfilling one of the overall objectives of Maqasid Al-shariah, its sphere has covered the essential needs of members of society and even luxuries through the third form of ownership. This is a collection of voluntary initiatives which an individual or a group of individuals voluntarily contribute—without expecting any pecuniary returns—to solving the socioeconomic problems of the various segments of society, whose basis is voluntary undertakings such as waqf, Islamic will, gift, and so on. However, this has dwindled following the weakness of the state as a result of mismanagement, absence of human capacity, lack of adequate supervision, and the dearth of Ijtihad.

In the past, donations by waqf donors have also played a significant role in social life, and these have developed today in accordance with new developments and requirements of society, contributing to all segments of life and services in the country. This covers areas such as: education, health and humanitarian relief and has had a great impact in the improvement, perpetuity and growth of services offered to society. As a result, educational institutions and health facilities proliferated in the land, just as waqf funds have become safety valve for society, contributing to the prevention her from the effects of crises, calamities and diseases which affect people from time to time. The severest of all in recent times in the corona virus pandemic which has plague the entire world. Here, the contribution of waqf has a far-reaching effect in alleviating its harmful effects.

This study accomplishes the following objectives: 1. Establishing a thorough understanding of the idea of waqf and the importance of effective management in the successful implementation of newly established waqf funds. 2. A recommendation for new legislation and laws to support in the innovation of waqf funds in order to address the changing faces of social crises. 3. Emphasizing the UAE's leadership role in focusing on waqf and its growth, as well as highlighting its national and international efforts. Furthermore, the importance of waqf in assisting society's growth, particularly in the areas of education, health, and humanitarian relief, is emphasised. In this research work, qualitative method is adopted. Due to the obvious study's nature and requirements, it incorporates a variety of approaches. To achieve the investigation's objectives, the following techniques were used: 1. Inductive Method: Using this method, we may fully comprehend various aspects of the role of new beneficiaries in service delivery to society. This is accomplished by doing an inductive analysis of several waqf models and their contributions through UAE waqf institutions. In a similar spirit, the inductive method allows us to access the views of Islamic scholars and jurists on both conventional and modern waqf systems. 2. Descriptive Approach: This approach is used to address the reality of waqf institutions' efficacy in managing beneficiaries efficiently, which is the subject of this paper. This

is accomplished through understanding the classification and organisation of beneficiaries in order to produce accurate results that support the study's objectives. 3. Interviews: The study's objectives imply a field investigation of waqf institutions. As a result, the interview approach is used to collect the necessary data in order to find out the truth about waqf institutions' performance and the extent to which they integrate their beneficiaries in contemporary developments.

**Significance of the Study.** The significance of this study is highlighted in the following.

1. The academic significance of the study lies in framing the concept of waqf, and its academic importance for human capacity development and governance for waqf institutions. It also proposes new and innovative waqf funds so that waqf can play its full role as it had been during glorious days.
2. The importance of a call for the renewal of Ijtihad in investigating the extent the compatibility of extant legislation and new waqf funds with the priorities of society and her ever changing requirements and needs.
3. Its importance also becomes manifest the need to highlight the leading role of the United Arab Emirates in waqf management and its role in social development, especially in the aspects of education, health, relief, and developing a model to be adopted.

**Literature Review:** A review of the relevant literature and related studies on the waqf beneficiaries and their development is undertaken in this section.

The work of Usamah Umar al-Ashqar, entitled *Taṭwīr al-Mu'assat al-Waqfiyyah fi Daw'i al-Tajribat al-Khayriyyah al-Maghribiyyah* (Developing an Islamic Endowment Institution in Light of the Charitable Experience of Maghrib) (2012) has won the first place in the International Kuwait Competition for Waqf Researches organized by Kuwait Awaf Public Foundation. The author was able to present the different forms of waqf based on Western charity experience, especially that of Britain, presenting a number of developments on how Islamic waqaf institutions can benefit from a model namely "wellcome" in this study.

The researcher is of the opinion that the superiority of contemporary Western civilization in the spheres of law, management and finance make it incumbent upon us to assume the status of learners and beneficiaries. This will go a long way in assisting us to apply new waqf beneficiaries thereby assisting in the actualization of the priority of society. This is contingent on ensuring that the rules and principles of Shariah are not infringed. This study seeks to actualize this objective in an attempt to fill the gap in the process of waqf institutional practice in comparison with Western legal and administrative development.

The work of Mundhir Qahf, *al-Waqf al-Islāmī: Taṭawwuruḥu, Idāratuḥu, Tanmiyatuhu* (Islamic Endowment: Its Development, Management, and Growth) (2000). The author was able to compile Islamic endowment material in the West and attempted to explain the practical development of Islamic endowment, concentrating on the necessity of changing the system of old awqaf management, their beneficiaries and the rigidity of their legislation. He proposed

that a modern system of management which reflects today's reality and its contemporary development together with a legislative framework that suits it, without compromising the provisions of the Islamic legal system. This work will be very resourceful and relevant to this study in relation to issues that have to do with juristic framework and adaptation, the effectiveness of divorcing some rigid rules that have led to the breakdown of Awqaf, and promoting the procedures for adapting new waqf beneficiaries, which include general charity, reflecting the reality of our visit to waqf institutions.

Al-Nawāzil al-Waqfiyyah (Emerging Waqf Issues) by Nāsir Abdullah al-Maimun. This work is comprised of three different studies related to waqf. They are: Waqf al-Nūqūdwa al-'Awraq al-Māliyyahwa 'Aḥkāmuhū fi al-Shari'ah al-Islāmiyyah (The Waqf of Cash and Securities and Its Rulings in Islamic Law; MukhālafatuShurūt al-Wāqif: al-Muskilātwa al-Hulūl (Islamic Endowment: Its Development, Management, and Growth); and Dīwān al-Waqfwa 'Aḥkāmuhā (Waqf Records and Their Ruling). In the case of our investigation, an attempt is made to collect and highlight the most important and innovative forms of waqf beneficiaries in the fields of education, health, and humanitarian relief in the United Arab Emirates.

In a related development, the book, al-Nawāzilfi al-Awqāf (Emerging Issues in Waqf), by Khalid Ali al-Mushayqih, The paper though is not an academic work, however, it discusses the juristic aspects of waqf issues, and few than the practical aspect in contemporary times. To that end, this study attempts to relate this to situation in the United Arab Emirates by collecting and highlighting the most important and innovative forms of waqf beneficiaries in the fields of education, health, and humanitarian relief.

Waqf, in its development, has undergone some stages in its concepts, method of management, and its growth. The way its definition differs from one era to another, so does its mechanics. In this section, the concept of waqf and its stages of development shall be treated as well as its types and the juristic basis for contemporary waqf beneficiaries.

**Concept of Waqaf:** Waqaf which is also known as al-tahbīs and al-tasbī. In literal terms, means al-ḥabs or al-man'. Where the former linguistically translates as "to obstruct, to hold back, to withdraw to hold in custody, etc.", and the later signifies "to stop, to detain, to hinder, to prevent, etc." It is said that: waqaftu kadhā, that is, ḥabastuhu. Awqaftuhu is only employed to indicate the same meaning as waqaf-tuhu or ḥabastuhu in the dialect of tamīmah (Al-Ferozabadi, 1426 AH). However, the usage of awqaftu, which means sakata (to be silent) 'amsaka (to withhold), or 'aqḷa'a (to desist from tampering with something), in the context of waqaftu is considered repugnant by a majority of the philologists. Hubs also share the same meaning as waqf, meaning asset or property that has been endowed by its rightful owner, whose corpus is withheld from any form of alienation and its proceeds expended for charitable or religious causes.

The plural form of ḥabs/hubs is ḥubus or 'aḥbās, where the latter, though not standard, is more commonly used than the former, which is standard. We say, iḥtabastu farasan fī sabīliLlahi to mean waqftu and ḥubus to designate what is dedicated

to waqf. The form *habīs* which follows the pattern of *fa'īl* indicates the object of waqf earmarked inalienably for a particular purpose. It is also important to note that the term waqf has also been applied to indicate the *mawqūf*, the asset or property dedicated to waqf (Al-ferozabadi, 1426 AH, Ibn Manzoor Al-Ansari 1414 A.H).

Coming to the technical connotation of waqf, Islamic jurists have defined it in various ways in accordance with their schools of jurisprudential thoughts on its concept. Each defines it based on their views on issues that relate to the particular details of waqf. Some see waqf as a binding contract, while others do not see it as such. Some others stipulate that it must be seen as an act of devotion, whereas others stand on the opposite direction. They have also differed on whether or not the donor of the waqf asset or property retains its ownership. The question of its ownership being transferred to Allah or being retained by the donor is a debated by the jurists. Another subject of disagreement that shape the technical definition of waqf is the question: Is it a contract or a waiver? If yes, what is the legal consequence of the answer to this question either in the affirmative or in the negative as regards stipulating the condition of acting the offer or making delivery to execute the contract? (Ikrima Sabri 2008). The following section gives the definitions of waqf according to the four major schools in brief.

Al-Sarakhsi, of the Hanafi School, defines waqf as: *ḥabs al-mamlūk'an al-tamlīkmin al-ghayr* preventing the ownership transfer of any owned asset to another person (1989). The word, *al-mamlūk* (something owned or an owned asset or property by the donor), is a clause which excludes the subject matter of waqf which is not owned by the donor. This is because if the donor is not the owner of the subject matter of waqf as at the time the object is donated as waqf, the waqf is not valid, even if he acquires its ownership thereafter. Therefore, it is not valid to donate a piece of land as waqf based on the fact that the donor intends to purchase and donate it to waqf. The clause, *an al-tamlīkmin al-ghayr* (preventing the transfer of ownership), refers to the corpus of waqf, which must not be at the disposal of anyone, just as the attribution of (*min al-ghayr*) to (*al-tamlīk*) implies that its ownership must be retained by the donor, as he is specified to be the sole owner with the exclusion of others.

The best definition of waqf given by the Maliki School is that of Ibn 'Arafah. He defines waqf as *i'tā'umanfa'atishay'inmuddatawujūdihīlāzimanfīmilkimu'tihāwalawtaqdīran* (the act of giving out the usufruct of something while its corpus exist and remains intact under the donor's ownership even if the ownership is implicit) (Al-Kharshi: Muhammad bin Abdullah, N.D). Here, *i'tā'umanfa'ati* excludes *i'tā'ual-dhawāt*, which means donating the corpus of the waqf itself which is not donated. Rather, it is the usufruct or proceeds of the waqf asset or property that is expended. *Shay'inin* this definition means *māl* or *mutamawwal* (that is, an asset or any form of valuable property that has usufruct). In the definition, *muddatawujūdihī* (as long as it [the corpus] exists) excludes borrowed asset and *al-'umrā* (a temporary gift contract which ends with the death of the recipient). These are not considered as waqf because the usufruct they both possess not perpetual. Thus, the lender of the former has the right to reclaim it whenever he wishes just as the donor of the latter, or the donor's heirs, has the right to repossess

it after the demise of the beneficiary. The expression, *lāzimanfīmilkimu‘tīhā*, this means it is exclude slave whose slavery ends with his owner’s death. This exclusion is borne out of the fact that his being under the ownership of his master is not constant because he could die before the death of his owner. Finally, *walawtaqdīranis* a phrase which could either imply ....

In the definition of the Shafi’i School of juristic thought, Ibn Hajar al-Haythami and al-Shaykh ‘Umayrah define waqf as: “to keep in custody any asset whose benefit can be reaped without using up its corpus by denying anyone the right to have it at their disposal and dedicating the usufruct to a permissible beneficiary” (1989).

To the Hanbali School, Ibn Qudāmah in *al-Muqni* defines it as *taḥbīs al-‘aṣlwatasbīl al-manfa’ati* “to keep the corpus intact and expend its usufruct” (Ibrahim bin Muhammed Ibn Mufalah, 1997). Similarly, he defines it in *al-Mughnī* as *taḥbīs al-‘aṣlwatasbīl al-thamarati* “to keep the corpus intact and expend its proceeds” (Ibn Khudamah Abdullah bin Ahnad, 1985). *Al-‘aṣl* means any asset from which benefit can be received while the corpus remains (Mansur bin Yunus Albahutī N.D), while *tasbīl al-manfa’ati* indicates expending or dedicating the proceeds or returns from the waqf asset to a specific cause.

Of all these various definitions of the concept of waqf, this study adopts that of the Hanbali School which is *taḥbīs al-‘aṣlwatasbīl al-thamarati* (to keep the corpus of an asset donated to waqf intact, for example, through and expend its proceeds). The choice of this definition is informed by two important factors:

1. This definition is in agreement with the exact wording of the Prophet (pbuh) when he said to ‘Umar bn al-Khattāb: *habīs al-‘aṣlwatasbīl al-thamarati* (Muhammad bin Ismail al-Bukhari, 1422 A.H). The wording of the Prophet (pbuh) is unique because he is endowed with lexical brevity full of rich meanings (al-Bukhari, 1422 AH).
2. Objections to this definition is less compared to other definitions.

**Types of Waqf:** The fact that certain advanced non-Muslim countries, such as the United States of America, the United Kingdom, and France, encourage waqf while having no religious motivation to do so, emphasizes its importance. Regardless of the various innovative social and financial services they have established, these countries followed the Islamic practice of waqf. Having adopted it, they applied it to several spheres like hospitals, universities, in combating of disasters, and providing aids to the needy (Tariq Abdullah 2010). All of these confirm that the institution of waqf is not a legacy of the past which is no longer needed in modern times, but rather its role is quite crucial, justifying the need to revamp this culture in every way possible (Badr Al-badr, N.D). The first type of waqf discussed is called *‘al-waqf ‘al-‘aḥli* or *‘al-waqf ‘al-dhurri*. It is a sort of waqf that begins with the donor including himself as the beneficiary, as well as his children, grandchildren, and relatives, while distinguishing them by their attributes and names, based on the family members’ interests. This involves cases where the donor, his family members, and the public benefited from the proceeds of the waqf he has donated. It has also been reported that the Prophet (PBH) donated seven date palm orchards he used to feed on its fruits and yields even as the donor. It, therefore, goes without saying that family or public

waqf were never known by these appellations even what is today known as joint or combined waqf (Al-Bayoumi, Ibrahim Ghanem 2008). However, this classification is inferred from the implicit invitation of Islam to righteousness, spending in the cause of Allah, the giving of charity and other forms of charitable acts. A very good example is the case of Uthman when he purchased and donated the well of *Rūmah* and for his own benefit and that of the people. In this regard, Al-Shaykh Mustafa Al-zrqah (1997) affirms that “then the Companions of the Prophet (PBH) would donate their assets as waqf to their own children and the see that as a means for protecting the assets from being squandered and for the perpetuity of reaping their benefits by the donors’ descendants. A typical example of this is the waqf of *al-Zubayrbnal-‘Awwām*—may Allah be pleased with him. He donated his houses as waqf for the dwelling-houses of his own children, excluding from the beneficiaries anyone of his daughters who fell in no need of it as a result marriage as a family waqf. The next classification is known as *al-waqfal-khayrī* (public waqf). Beneficiaries of such types of waqf designated as public waqf include the poor, the needy, orphans, widows, the bereaved, and victims of wars. Public waqf should have its yields or proceeds disbursed to charitable causes for the benefit of the general public in perpetuity. The third category is what is called *al-waqfal-mushtarak* (joint or common waqf). This type of waqf, as its appellation denotes, is a combination of public waqf and private or family waqf. For example, when a donor donates, for instance, a piece of real estate for the benefit of his children and the needy by halves or as the donor deems fit (Abdullah bin Ahmed bin Qudamah 1985a, Abdul Aziz bin Ibrahim bin Qasim 2010). This implies that a waqf is donated for two different categories of beneficiaries at the same time.

**The Juristic Basis for Contemporary Waqf Beneficiaries:** Waqf is one of the institutions which is highly encouraged and promoted by Islam, and for which a bountiful reward has been earmarked. In terms of its legitimacy, the overwhelming majority of Muslims agree that waqf is permissible (Ahmed bin Idris Al-Qarafi 1994), and most of its rulings are equally agreed upon. It is, however, worth mentioning that some forms of waqf practice are disputed over by Muslim jurists where some allow them and others disallow them. However, regulated juristic discretion (*ijtihad*) which is based on the principles and objectives of Shariah, devoid of juristic rigidity and imitation, has confirmed that those forms are actually allowable in any case and leads to the growth, expansion and perpetuity of waqf.

In the following section, we shall treat a collection of contemporary waqf beneficiaries which are classified under a number of juristic issues that expatiate on their legal rulings. We shall also succinctly address these issues in a manner that suits the respective issues in question. This will clearly showcase the broadness and comprehensiveness of the Islamic legal system in accommodating contemporary waqf beneficiaries.

The first issue to be addressed here is the issue waqf al-manqūl (moveable waqf). As far as the issue of making an endowment of moveable assets as waqf, Islamic jurists have differences of opinion. The Malikis (Ahmed bin Idris Al-Qarafi 1994), the Shafi’i and the Hanbali Schools all hold that it is permissible (Yahya bin Abi Al-Khair Al-Omrani 2000; Ali Bin Suleiman Al-Mardawi, N.D). They based their

argument on the fact that the basis for waqf is to ensure the perpetual existence of the waqf asset together with its continual benefit. According to the view of this majority, the characteristic is also found in such moveables as a computer system, medical apparatuses, and ambulances. This opinion, if upheld, is capable of expanding the roles of in addressing emerging issues or developments that affect the Ummah. This is especially true of the current situations in which some Muslim nations find themselves including an acute shortage of medical supplies. Relying on this legal position, waqf institutions in the United Arab Emirates have introduced new more waqf beneficiaries of moveable waqf assets such as medical supplies and ambulances, which are distributed to health centres with the Emirates. Different medical aids have also been sent to nations severely affected by the adverse effects of the coronavirus pandemic.

Another issue that provoked serious juristic debate amongst the Muslim jurist is the setting of a life time for the waqf asset (ta'qital-waqf). In other words, Muslim scholars are differed over the question setting a time limit for the existence of an asset designated as waqf. The Maliki School (Ahmed bin Muhammad Al-Khilouti Al-Sawy, N.D), on its part, allows this phenomenon. Their argument for holding this opinion is based on the premise that waqf is a type of ṣadaqah (voluntary donation to charity), and therefore its existence could be perpetuated or made temporal. They take their argument further by stating that there is no evidence that prevents setting a time limit to the existence of a waqf asset. Hence, there is no justification for disallowing temporal waqf. Being an adherent of the Maliki School of jurisprudential thought, waqf institutions in the Emirates upheld this view. Finding credence in this opinion permitting a temporary waqf, these institutions see it as being beneficial in so many ways. First, this view consolidates the expansion of the benefit of waqf to the sphere of humanitarian services. It is also a view that promotes the realization of immediate benefits to recipients and meets their needs. It is for this reason that waqf institutions in the Emirates have been able to expand their base of beneficiaries by providing shelters and temporary camps during humanitarian crises, where buildings and shopping centres are allocated to hospitals to save the situation until when they are no longer needed.

Another important question that has sparked fierce debate amongst the jurists is that of donating consumables as waqf. Scholars are not agreed as to the permissibility or otherwise of any asset whose use leads to the total consumption of its corpus. Its permissibility has been reported from the Malikis as long as it takes a relatively long time to get such consumables used up. The evidence advanced by the Malikis to support their stance is based, not on direct textual evidence but on analogical deduction (qiyās). It is claimed that consumables are analogous to moveables since both will eventually end up used up. Therefore donating consumables to waqf is as good as donating a pen, other writing materials, medical pieces of equipment for the treatment of patients such as bandages and so on. It is this argument that made waqf institutions in the Emirate to intensify their effort in providing these materials for meeting the urgent needs of beneficiaries in these areas.

Is it permissible to change the stipulation of a waqf donor? The answer to this question coded in the popular maxim amongst the jurist that is phrased thus: *Shart al-wāqif kan assal-shāri'*, which is interpreted as "the stipulation of a waqf donor has the



force of a legal text". The implication of this maxim is that it is not permissible to change any conditions stipulated by a donor. For example, if a waqf donor stipulates that the proceeds a waqf he has donated should be channelled to financing seekers of knowledge, such stipulation must be complied with and should not be used pay the hospital bills of the sick. As regards the ruling of changing the conditions stipulated by a waqf donor, Muslim jurists have differed. The Hanbali School have permitted doing so only in case of dire necessity (bin Qudamah 1985b), because necessity knows no law.

In recent times, the whole world is faced with the pandemic of coronavirus which may force waqf institutions to divert waqf proceeds to other uses than those stipulated by waqf donors. This is obviously permissible due to necessity. However, in the application of this this principle of necessity that allows a breach of a donor's condition due diligence must be observed. Of all issues relating to contemporary waqf beneficiaries, this is the most important. It affords workers in the field of waqf the facility and flexibility to deal in waqf assets in the best interest of the general public. By so doing, waqf assets can be managed in the best possible way without incurring any legal penalty.

**Forms of Contemporary Waqf Banks in the Educational Field:** Waqf has played a significant role in the spread of knowledge in Islamic states. Centres for knowledge and Islamic culture were established, creating an enabling environment for jurists, scholars and the literati to author books, publish them as well as engage in academic investigations in jurisprudence and literature. Waqf was able to play these roles through several institutions including *katātib* (elementary Islamic schools), schools, universities, and public libraries.

In the United Arab Emirates, considerable attention has been given to the field of education. This informed by its recognition of the role knowledge and education in the growth and development man and society. Since waqf is a source of sustainable resources, it served as the safety valve for educational institution to continue to provide their tasks effectively. Therefore several forms of waqf and their beneficiaries emerged serving educational institutions ranging from erecting learning centres to providing learning resources and scholarships for prospective students in those centres, paying the tuition fees of students in need, awarding academic chairs, giving grants for academics researches and innovations, among many other services that promote the development of education. In the following section, a discussion will be had of some of waqf programs and waqf beneficiaries that are available in the United Arab Emirates.

### **Scholarship Offers at the United Arab Emirates' Universities**

In offering this benefit, many agencies have taken active part. These include:

1. The waqf of Jum'ah al-Majid for the Faculty of Arabic and Islamic Studies in Dubai has been in operation since 1986 to serve the Emirati society especially students (The name of faculty later changed to Al-Wasl University), the Gulf people and the Arabs. The faculty offers programme Bachelor's,

Master's and Doctoral degrees programmes in Arabic and Islamic Studies. Presently, more than 1800 students—male and female—are enrolled for these programmes, while the total number so far graduated by the faculty runs close to 11,601 students. In addition to its academic programmes, the faculty presents a programme to help students accomplish their potential in order to enter the labour market. It is actually a comprehensive waqf-based programme introduced by the faculty to support the United Arab Emirates vision 2021. It is targeted at increasing local content participation in the labour market as well as affording its citizens employment opportunities at the national level. It is a vocational academic programme which is aimed at providing secondary school certificate holders with requisite skills and necessary work ethics for all stages of initial recruitment. It also prepares them to perform their various jobs with a high degree of productivity and efficiency. Currently, the number of participants enrolled for the programme is about 600 students in Dubai and Fujairah. The faculty also create the avenue for those willing to take part in printing their master's and doctoral researches in Arabic and Islamic studies as a service to society and education (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

2. Mrs. Dawlat al-Mahmud has donated the sum of twenty-five million dirhams with the main objective of establishing the first-ever investment waqf specifically dedicated to education at the Foundation for Waqf and Palace Affairs in Dubai. The annual proceeds from this waqf investment are channelled towards paying tuition fees for university education received by a number of minors supported by the institution. This educational waqf is considered the first and the largest of its kind. To maintain sustainability, the institution invests the waqf donations in different investment portfolios and financial instruments. The annual returns from these investments are used to sponsor the education of a number of needy children under the institution (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

Returns from these waqf investments are also dedicated to offering university scholarship for outstanding students, who are under the custody of the institution to study at such prestigious universities as the University of Dubai, the University of Sharjah, Sorbonne University Abu Dhabi, and a host of other national and international universities in the Emirates. This scheme, in its offer of scholarship, takes into consideration the encouragement and promotion of disciplines that society need most much more than others, with the aim of enhancing the competitiveness of the Emirates at the global level.

3. Mohammed bin Rashid Faculty of Government Administration, in collaboration with Muhammed bin Rashid International Centre for Waqf and Donation Consultancy and the Arab Administrative Development Organization (ARADO), has participated in creating sixty waqf seats for students from the Gulf States and the Arab World in a programme called Dubai Government Excellent Programme (DGEP). Through this initiative, the faculty undertake

to bear all tuition fees and study costs of select students. Incorporated into the initiative is a training workshop tagged Dubai Government Institutional Excellence Programme, which the faculty organizes in collaboration with the ARADO. The main aim of this programme is to shed light on the basic concepts of the Institutional Excellence Programme by identifying best practices in leadership, strategies, methodologies, initiatives and services in Dubai Government as well as other governments. All of these programmes are designed to build a comprehensive standpoint and a practical approach to enhancing institutional efficiency of the Government in Arab nations (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

4. Easa Saleh al-Gurg Charity Foundation offered scholarship to 10 local students in order to obtain a bachelor's degree in medicine obtainable at Muhammad bin Rashid University of Medicine and Health Sciences. The foundation made the contribution—the scholarship offer—within the framework a prior agreement that has been concluded with the university since 2017 for an amount running to 5 million dirhams to offer scholarship to medical students (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

**Shabab al-Kayr Campaign Initiative:** Muhammad bin Rashid Centre for Waqf and Gift Consultancy, a subsidiary of the Foundation for Waqf and Palace Affairs, Dubai, applied the name 'Shabab al-Kayr Initiative' to this project. Its objective is to encourage owners of restaurants to contribute to innovative waqf and humanitarian causes.

This initiative comes in the form of donating a restaurant table to waqf and its proceeds are specified for a public waqf in order to meet the different societal needs of individuals in diverse areas of like such as education, scientific research and among many others. The 'Shabab al-Kayr Initiative' is also concerned with fostering a culture of waqf awareness and promoting the habit giving among the youth, and increasing the rate of participation in waqf and humanitarian work among the youth. This is achieved through creating opportunities for participation in waqf practice, diversification of waqf instruments as well as increasing the rate of innovative waqf (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

### **Donation of Computers to School Children**

1. The Foundation for Waqf and Palace Affairs has participated in waqf through earmarking 300 thousand dirhams to provide 200 computers for a number of students of the Education District of Dubai public schools. This programme is a support for "the Distance Learning Programme" which has been initiated by the

Ministry of Education through the Smart Learning Portal in order to ensure that students benefit from all lessons and available programmes from their homes through computers under any circumstances.

2. Carmen Perfumes has also participated in waqf by setting aside a certain percentage of its profit to purchase study computers for students from poor families (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

### **Dubai University Scholarship**

The Foundation for Waqf and Palace Affairs has signed a memorandum of understanding with Dubai University with a view to foster the role of both parties in making concerted efforts in order to support and empower minors (القصر) by offering them and the employees of the foundation who wish to undertake academic and executive courses in the university 20% discount tuition fees.

### **Support for Public School Students**

1. An asset management firm has provided support for 24 public schools and an educational institution with a total amount of over four million dirhams. Among the services and supports rendered to schools and agencies by the firm include female students fund to provide computers, meals, transportation for students from poor families, provision of computers, iPads, and printers to meet the need of students. In addition, provisions are made for maintenance of school facilities such as painting of buildings, erecting canopies in school courtyards, mounting of surveillance cameras, maintaining water dispensers, air conditioners, furniture. It also provides new equipment for soccer, volleyball, basketball among others. Smart learning facilities, an experimental laboratory and a modern library to encourage reading culture among females, have been established (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).
2. In an innovative way, General Electric Company has contributed to the development of schools and supported them with a number of electronic products continuously on a yealy basis (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

### **Child Education Support**

In a related development, Kitchen-and-Beyond Foundation has contributed to this scheme through the establishment of waqf facilities for use in specific programmes tagged Child “Education Waqf” at a centre known as al-Jalilah Cultural Centre for Children. This continuous social service follows from the concept of innovative waqf as well as the first-ever waqf initiative for children’s cultural development launched

by al-Jalilah Centre for Children Culture in collaboration with Muhammad bin Rashid Centre for Waqf and Gift Consultancy. Through the concept of innovative waqf, fresh waqf initiatives of different sorts are introduced as investment instruments through services and products that are not restricted real estate assets, which is characteristics of traditional waqf (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

## 2 Contemporary Waqf Beneficiaries in the Field of Health

Health is no doubt one of the greatest blessings which Allah has bestowed on humankind. Islam shows concern for human health in terms of both the prevention of anything that could cause any harm to it or cares for its restoration when it fails. Islam also enjoins taking good care of the sick, giving them good treatment and paying them visit, just as it encourages providing them with moral and material supports until they fully restored to good health. For this reason, the sick in Islam receives a great deal of attention, care and concern, considering them to be one of members of society who are in need of aid and support. This is especially true if the patient is poor and needy. In this regard, waqf has played considerable role in providing health care for patients.

By taking a closer look at the history of medicine in Islam, one would notice that there is a correlation between the growth and development of waqf, its spread and expansion and the growth and development of medicine both scientifically and professionally. Waqf almost entirely became the major source of funding for hospitals, schools, medical institutes, and other medical facilities. This is what made many history analysts to conclude that the unprecedented advancement witnessed in early Islamic nations in the areas of medicine, pharmacy, and chemistry is purely attributable to the Islamic endowment system, known as waqf (Khadija Khairy Abdul Karim Khairy 2020; Zakariyah et al. 2021).

The Emirati society has been concerned with the development of waqf system, which has been employed to support the medical sector in the country. The different types of waqf that are practiced in this area include the establishment of hospital buildings, purchase of hospital equipment, funding of medical research, paying the bills of the needy, and providing scholarship for students in medical universities. All of these and many more have contributed to the development of this sector and its sustainability. In the following part of this section, a mention will be made of the major waqf beneficiaries in the Emirates.

**Support by the Foundation of Awqaf and Minors Affairs for the Social Health Fund:** The Foundation for Waqf and Palace Affairs in Dubai has contributed to the development of health waqf through new projects by using the proceeds to offer medical treatment for terminal and dangerous suffered by the needy. This is in an

attempt, on the part of the foundation, to discharge its corporate social responsibility and its desire to lend a helping hand during humanitarian crises and to every sick person who cannot afford to pay hospital bills. Thus far, it has given financial support to the tune of one million dirhams to Dubai Health authority for the oncological treatment of people suffering from cancer in Dubai Health Authority Hospitals. In addition to this, it runs dialysis sessions for low-income earners with renal (kidney) failure. The selection of beneficiaries of this programme is based on studies conducted by the Authority to ascertain the cases of people who cannot afford to pay for the treatment. This charitable and humanitarian project has contributed in no small measure towards the actualization of a sustainable development in the health sector. With a view to ensuring the safety and security of all, it has also gone a long way in meeting the medical needs of critical health situations of the needy in society (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai.).

### **Support for Students and Research Projects at Muhammad bin Rashid University of Medicine and Health Sciences:**

Many agencies have participated in this scheme including but not restricted to:

1. The Foundation for Waqf and Palace Affairs in Dubai announced that it has entered into Muhammad bin Rashid University of Medicine and Health Sciences to earmark about twenty million dirhams for the health sector support. This amount is meant for the creation of two waqf projects. First, comprising the construction of 4 residential villas, each consists of a ground floor and a first floor, on a plot of land endowed for the common good, and registered in the name of the Endowments and Minors Affairs Foundation in Al-Bidaa region, with an area of 7,200 square feet. The construction and costs and the value of the plot of land are estimated at nine million dirhams. The second endowment is located in Dubai's Al Murar area on a patch of land designated for the common benefit with a total area of 1,767 feet which comprises a commercial and residential building with four recurrent floors and a ground floor. And the Awqaf Foundation is in charge of its supervision and management. The proceeds of the health endowment will be spent on building research and studies centres and clinics equipped with the latest technologies designed according to international standards. The endowment will also provide the necessary support to students at the Mohammed bin Rashid University of Medicine and Health Sciences, to conduct specialized studies and research, and support them in creating medical devices to combat diseases and epidemics, as well as assisting patients who are unable to provide treatment costs (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai.).
2. Gulf Pharmaceutical Industries provided one million dirhams to the Mohammed bin Rashid University of Medicine and Health Sciences to promote specializations in several disciplines of dentistry (Interview with Mr. Fahad Al Bannai.

Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai.).

3. Al-Madina Pharmacy contributed by providing seventeen dental chairs to the Mohammed Bin Rashid University of Medicine and Health Sciences, with an estimated value of not less than one million dirham. The Mohammed Bin Rashid University of Medicine and Health Sciences placed these medical endowment chairs to the Dubai Dental Clinic in order to expand the clinic's services and make cases easier for dentists enrolled in the university's Hamdan Bin Mohammed College of Dentistry's postgraduate programmes (Interview with Mr. Faisal Al Hammadi. Head of the Banking Department at the General Authority for Islamic Affairs and Endowments, by phone. Date of Thursday, July 1, 2021 AD, at: 13:30).
4. Al Waleed Real Estate donated by granting an endowment grant to the Mohammed bin Rashid University of Medicine and Health Sciences, which will be used to teach medical and health sciences (Interview with Mr. Faisal Al Hammadi. Head of the Banking Department at the General Authority for Islamic Affairs and Endowments, by phone. Date of Thursday, July 1, 2021 AD, at: 13:30).

### **Third: Supporting medical research at the Mohammed bin Rashid Centre for Medical Research:**

1. The Foundation for Endowments and Minors Affairs in Dubai has provided support worth 750,000 dirham from endowment banks, to the Mohammed bin Rashid Centre for Medical Research of the Al Jalila Foundation, to contribute to the "Basmat Rashid bin Saeed" campaign to support innovations in the fields of scientific achievements and medical research. This funding will go toward medical and scientific research in a variety of incurable and chronic diseases, as well as epidemiological and viral research, particularly in relation to the emerging corona virus, reflecting the Foundation's desire to support medical progress and scientific achievement, as well as contribute to the preparation of a generation of qualified researchers in a variety of health disciplines, all of which will help strengthen public health and disease prevention (Interview with Mr. Faisal Al Hammadi. Head of the Banking Department at the General Authority for Islamic Affairs and Endowments, by phone. Date of Thursday, July 1, 2021 AD, at: 13:30).
2. The Emirates Auction Company made a contribution by donating a portion of its revenues each year to medical research for cancer therapy, with the funds going to the Mohammed bin Rashid University of Medicine and Health Sciences, which would utilise them to fund research in this sector (Interview with Mr. Faisal Al Hammadi. Head of the Banking Department at the General Authority for Islamic Affairs and Endowments, by phone. Date of Thursday, July 1, 2021 AD, at: 13:30).
3. Markets made an innovative contribution by giving a portion of the proceeds from market-branded items to diabetes research (Interview with Mr. Faisal Al

Hammadi. Head of the Banking Department at the General Authority for Islamic Affairs and Endowments, by phone. Date of Thursday, July 1, 2021 AD, at: 13:30).

#### **Fourth: Supporting health care for the needy:**

Several entities made contributions to endowment banks of this type, the most prominent of which are:

1. Zulekha Hospital has established an endowment for medical examinations, with a budget of two million dirham set aside each year to provide medical examinations to the poor in a variety of disciplines. In collaboration with the Mohammed Bin Rashid International Centre for Endowment and Endowment Consultation, this long-term community service is based on the notion of innovative endowment (Interview with Mr. Faisal Al Hammadi. Head of the Banking Department at the General Authority for Islamic Affairs and Endowments, by phone. Date of Thursday, July 1, 2021 AD, at: 13:30).
2. The Awqaf and Minors Affairs Foundation in Dubai and Prime Hospital have signed a memorandum of understanding to enhance cooperation and partnership in order to provide free health treatments to widows, orphans, and those under quarantine. Under the terms of the agreement, the two sides will work together to provide free health services to orphans, widows, and internees, including comprehensive examinations, vision examinations, and home nursing, as well as endowment medical devices at hospitals that serve poor patients (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).
3. The “Awqaf and Minors’ Affairs Foundation” in Dubai has allocated an amount of 560,000 dirham to support the cases of needy patients in cooperation with the Trahum Charitable Foundation, as part of its activities for the holy month of Ramadan and the year of Tolerance, and in an effort to improve the level of health care enjoyed by the largest number of needy patients, and over the course of 28 One day during the month of goodness, the Awqaf and Minors Affairs Foundation, provides a daily financial donation of 20,000 dirham from the Pan-Khair Bank to help 112 cases of needy patients throughout the holy month, at a rate of four cases per day, through the platform of the People for People programme on Dubai Radio. The collaborative initiative seeks to provide a helping hand, assist, and support deserving patients in bearing the costs of treatment, purchasing medicines, and receiving medical devices that many patients needed who suffer from chronic or incurable diseases (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).
4. The Awqaf and Minors’ Affairs Foundation in Dubai has made a financial contribution of one million dirham to the management of Al Jalila Children Specialist



Hospital in order to support the families of patients and those who are financially disadvantaged, with the goal of developing the services provided, whereby medicines and treatment are provided to patients who do not have prescription coverage to obtain their treatment, which in turn contributes to improving the quality of life and improving the health status of patients in the country (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

5. Gloria Hotels Group contributed to an innovative endowment represented in the opening of the world's first hotel room for endowment treatment for the needy in Dubai, where a portion of the proceeds from the endowment room is used to cover the costs of treatment for those who are unable to pay, with the remainder being donated to charities (Interview with Mrs. Maha Mansour Al Sayegh, Deputy Head of the Endowment Properties Department of the Emirate of Sharjah. By phone, date: 06/22/2021 AD, time: 8:00).
6. The exclusive agent for Wai Wera water, Addition One General Trading Company, has contributed in an innovative endowment way by transferring a percentage of its sales to an endowment, the proceeds of which go to the treatment of kidney patients who cannot afford treatment, and the company will later donate the endowment proceeds to charities. In collaboration with the Mohammed bin Rashid International Centre for Endowment and Endowment Consultation, this sustainability community service is based on the revolutionary endowment concept. Whereas the traditional endowment concept limits the formation of different forms of endowment as a development instrument to real estate assets, the innovative endowment concept allows the creation of diverse types of endowment as a development tool through services, products, and so on (Interview with Mrs. Maha Mansour Al Sayegh, Deputy Head of the Endowment Properties Department of the Emirate of Sharjah. By phone, date: 06/22/2021 AD, time: 8:00).

#### **Fifth: Waqaf the treatment rooms:**

1. In collaboration with the Beit Al Khair Association, Al Zahra Hospital in Dubai has donated the first endowment operating room for obesity treatment for those who are unable to pay the costs. The association will identify individuals who are unable to pay the fees for obesity treatment operations and then cooperate with the hospital in performing the operations (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).
2. The Derma Med Clinic in Dubai contributed to the establishment of an endowment treatment room for patients who cannot afford to pay for treatment (Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

**Examples Of Contemporary Endowment Banks In The Relief Field:** The UAE and the societal efforts of the country's citizens and residents have played a major role in relief during the COVID-19 pandemic, both internally and externally and still where endowment institutions play a major role by activating the temporary endowment and the new innovations of its banks, especially in the General Bank of Goodwill, in order to make the community contribution to the success of the fight against the emerging corona virus.

This is done in collaboration with philanthropic organizations and institutions, as well as through government agencies like the Emirates Red Crescent Authority, the Mohammed bin Rashid Al Maktoum International Foundation, and other humanitarian groups and entities in the UAE. The following are some examples:

**First: Providing support to the families of those who have died as a result of the Corona virus, regardless of nationality:**

As part of a program dubbed "you among your family," the Emirates Red Crescent Authority has adopted and stated that it will sponsor and care for all families whose breadwinners have perished due to the Corona virus, Covid-19, and of all nationalities and inhabitants in the UAE by providing the Authority with all of the requirements that these families needed, as well as all that would aid in their ability to confront life's challenges and overcome the loss they have suffered. It then went on to carry out procedures related to the issuance of guarantees, including counting the victims and deceased at the state level, communicating with their families, studying their social conditions, and identifying their needs in the areas of living, health, and education in collaboration with the competent authorities. Al Bannai, Head of the Awqaf and Minors Affairs Foundation's Endowment Banking Department in Dubai. with the Foundation's participation to the initiative, the Foundation donated one million dirham to the project, valued at 500 thousand dirham, distributed evenly between the Dar Al-Bir Association and the Charitable Compassion Foundation for the same initiative's goal (Interview with Mr. Fahad Al-Bannai. Interview date: Tuesday, June 22, 2021 AD, time: 10:00–12:00, meeting place: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

**Second: The Emirates Fund—The Homeland of Humanity:** The Emirates Fund, Homeland of Humanity, was launched on February 25, 2020, by the National Authority for Emergency, Crisis, and Disaster Management, the Emirates Red Crescent, humanitarian organizations, and charitable societies in the country in collaboration with the National Authority for Emergency, Crisis, and Disaster Management, the Emirates Red Crescent, humanitarian organizations, and charitable societies in the country.

The fund aims to bring together efforts to combat the epidemic, allowing individuals and institutions to demonstrate solidarity and societal cohesion by donating material and in-kind goods, as well as contributing to the endowment of charitable buildings and facilities such as hotels, complex parking lots, and commercial centers, as well as field hospitals, cars, and logistical support. In the early stages of the pandemic, Endowments and Minors Affairs received 10 million dirham in financial

donations, as well as in-kind donations to prepare an apartment complex to accommodate cases (Interview with Mr. Fahad Al-Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, meeting place: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai).

Mrs. Maha Mansour Al Sayegh, Vice-President of the Emirate of Sharjah's Endowment Properties Department, stated that the Sharjah Endowment Department donated 5 million dirham from the proceeds of the endowers' wills and the Bab Al-Khair Bank to embody societal cohesion and achieve Sharia's purposes in preserving the five colleges and the public interest (Interview with Mrs. Maha Mansour Al Sayegh, Deputy Head of the Endowment Properties Department of the Emirate of Sharjah. By phone, date: 06/22/2021 AD, time: 8:00).

**Third: The Community Solidarity Fund against COVID-19:** The Department of Islamic Affairs and Charitable Activities in Dubai launched the Community Solidarity Fund against Covid-19, in coordination with the third sector, to contribute to the fight against the pandemic and to enable everyone to donate to the right destinations and through specific channels, in order to coordinate with the Control and Control Centre to serve the support of emerging requirements or any other reasons, and in this regard, the Foundation for Endowments and Minors Affairs with Immigration and Foreigners Affairs made a donation on behalf of the debtors and the affected people stranded in the state, by facilitating their travel matters and providing them with travel tickets from the Pan-Khair Bank, which was harnessed for such cases (Interview with Mrs. Maha Mansour Al Sayegh, Deputy Head of the Endowment Properties Department of the Emirate of Sharjah. By phone, date: 06/22/2021 AD, time: 8:00).

**Fourth: A health centre for returnees from the epicentre of the outbreak of the Corona virus (Humanitarian City):** A Centre for Health and Prevention was established in the Emirate of Abu Dhabi for nationals of countries who were evacuated from the Chinese province of Hubei, the epicentre and focus of the new Corona epidemic, Covid-19, by presidential orders, as part of the humanitarian efforts undertaken by the UAE to uphold the values of solidarity with societies and peoples, to alleviate crises. Mr. Faisal Al Hammadi, Head of the Endowment Banking Department at the General Authority of Islamic Affairs and Endowments in Abu Dhabi, reported the Authority's contribution to equipping an endowment building affiliated with it in the Emirate of Abu Dhabi, based on a request for assistance from the Crisis and Disasters Authority responsible for the initiative, and the management of the General Authority was directed to make the building at the disposal of the initiative during the Corona period to receive these cases (Interview with Mr. Faisal Al Hammadi. Head of the Banking Department at the General Authority for Islamic Affairs and Endowments, by phone. Thursday, July 1, 2021 AD, at 13:30).

The UAE's initiative to evacuate nationals from these countries from the Chinese province of Hubei was warmly received, and he emphasised the UAE's great responsibility and the constants of its society and charity among its citizens, as well as demonstrating the state's health system's efficiency on both an internal and external level.

**Fifth: Sending aid to the affected countries in cooperation with the World Health Organization:** To complement its relief and humanitarian efforts, the UAE has taken the initiative to send humanitarian aid outside the country, with the help of community members and philanthropic organisations, in order to alleviate the suffering of its peoples as a result of the Corona virus. The UAE has sent planes carrying various tonnes of aid and medical and preventive supplies to Italy, Kazakhstan, Colombia, Iran, Ukraine, India, and other countries to assist them in combating the emerging Corona virus, Covid-19, and has also coordinated with these countries to return their stranded citizens and the intervention of charitable institutions. In order to assure their safe return to their countries, they must pay their infractions and obligations. Mr. Faisal Al Hammadi, Head of the Endowment Banking Department, told the General Authority for Islamic Affairs and Endowments that benefactors of citizens allocated endowment funds for the relief of those affected by the Sudanese floods in a time other than the Corona epidemic (from an interview with Mr. Faisal Al Hammadi Head of the Banking Department at the General Authority for Islamic Affairs and Endowments Islamic and Endowments, via previous phone) (Interview with Mr. Faisal Al Hammadi. Head of the Banking Department at the General Authority for Islamic Affairs and Endowments, by phone. Thursday, July 1, 2021 AD, at 13:30).

**Sixth: The 10 Million Meals Campaign from the Mohammed bin Rashid Global Initiatives Foundation:** On April 19, 2020, the UAE started a 10-million-meal campaign to help the most poor individuals and families affected by the new Corona virus outbreak (Covid-19). This campaign, which coincided with the beginning of the blessed month of Ramadan, provided the opportunity for institutions, companies, businessmen and all members of society to contribute to this initiative. Especially to keep up with the conditions of the country at the beginning of the pandemic when movement was banned at most hours of the day, followed by a complete closure of areas, including the Ras and Naif area in Dubai, which have a high population density, so community members rushed to contribute, whether by donating cash, buying meals or making in-kind donations, in the form of Food aid and supplies for the residents of these areas to their place of residence, and this was done by the efforts of charitable institutions, including the Endowment Foundation, which contributed to most of the local initiatives within the country, and the contribution of federal and local government institutions (Interview with Mrs. Maha Mansour Al Sayegh, Deputy Head of the Endowment Properties Department of the Emirate of Sharjah. By phone, date: 06/22/2021 AD, time: 8:00).

**Findings and Recommendations:** At the conclusion of this research, and with the adoption and imposition by the UAE of excellence in all its federal and local institutions, and by the application of endowment and charitable institutions to the highest standards of institutional management work and governance, the importance of renewing jurisprudence and enacting laws and legislation according to societal developments, by finding jurisprudential formulas in line with the spirit of Shariah

and the requirements of the times, It contributes to solving endowment problems and creating innovative endowments with endowment outputs and models that are consistent with the priorities of the state and the will of endowers in serving the community locally or abroad, and this was evident in the emerging endowment banks, whether health, educational or relief mentioned in this research.

The research came up with a number of results based on this investigation, which are as follows:

### **The Most Important Results**

The research reached a number of results, which are as follows:

1. There is no generally accepted definition of waqaf, though the Hanbalis notion of “locking the original and severing the fruit” may be the closest.
2. The UAE is interested in creating binding rules and regulations and implementing them in institutions and these laws and contemporary jurisprudence allowed endowment institutions the ability to work without limits and in a way that does not contradict Shariah provisions.
3. There is a development in the form of endowments and management strategies for their banks in response to societal needs.
4. The community’s good reputation, as well as the administrative experience of those in responsibility of charitable work in general, leads to donors’ trust in charitable work and the endowment’s growth.
5. The study demonstrated the effectiveness of endowment banks, as well as their diversity and modernity.
6. The waqf’s relevance was highlighted in terms of education, health, and relief, as well as its role as a disaster-prevention tool in the event of crises, disasters, and pandemics.
7. The research highlighted the relevance of innovation and renewal in the endowment’s development and sustainability viability.

**Recommendations:** Several recommendations are made at the conclusion of this study, after mentioning the researcher’s findings:

1. Ensure that endowment privacy is protected by effective application of standards of excellence and governance.
2. Activities to bring the work of the many endowment institutions closer together, increasing the trust of those who come to the endowment.
3. When hiring officials and administrators in charitable work organizations, ensuring the availability of strong reputation and outstanding administrative experience.

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## *Interviews*

- Interview with Mr. Fahad Al Bannai. Interview date: Tuesday, June 22, 2021, time: 10:00–12:00, interview location: Awqaf and Minors Affairs Foundation meeting room - Al Nahda 3, Dubai
- Interview with Mr. Faisal Al Hammadi. Head of the Banking Department at the General Authority for Islamic Affairs and Endowments, by phone. Date of Thursday, July 1, 2021 AD, at: 13:30
- Interview with Mrs. Maha Mansour Al Sayegh, Deputy Head of the Endowment Properties Department of the Emirate of Sharjah. By phone, date: 06/22/2021 AD, time: 08:00

# Exploring the Potential of Using the Zakat Fund in Structuring Islamic Micro Takaful



Habeebullah Zakariyah , Ahmad Abdulla O. M. Al-Own ,  
and Altaf Ahmad 

**Abstract** Takaful is one of the leading sectors in Islamic financial institution in the recent times as it has received wide acceptance among Islamic financial institutions. This paper addresses the Shariah issues related to possibility of using Zakat fund to establish micro-Takaful. Contemporary Muslim jurists opined that Takaful is based on *Tabarû* contract. This study analyzed two major shariah issues: the first of which is permissibility of delaying the distribution of zakat fund to the recipients (*Asnaf*). The second: the possibility of taking from the Zakat Fund to establish the micro-Takaful fund for the recipients. This study adopts inductive and critical analytical approach to explore whether Zakat Fund can be used to establish micro- takaful fund. The study concluded that there is no Shariah issue in utilization of Zakat Fund for micro-Takaful in so far it is dedicated and exclusively for the Zakat recipients (*Asnaf*). The research recommends the relevant authorities and institutions to set a framework within which this structure can be applied in contemporary time.

**Keywords** Takaful · Zakat · Micro Takaful

## 1 Introduction

Islamic insurance is also known as “Takaful” is defined by many scholars, below are few definitions:

Al-Ghufaili (2008, p. 258) defined Takaful as “A group of people who are in danger of a risk, subscribe to cash amounts as a subscription while each person who has been harmed will be compensated”. According to Al-Qara Daghi (2006, p. 203) Takaful is an “agreement between the Takaful operator as a representative of the participants and those wishing to insure (either a natural or a legal person) on his acceptance as

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H. Zakariyah (✉) · A. Ahmad  
IIUM Institute of Islamic Banking and Finance, International Islamic University Malaysia  
(IIUM), Gombak, Malaysia  
e-mail: [habzak@iium.edu.my](mailto:habzak@iium.edu.my)

A. A. O. M. Al-Own  
Qatar University, Doha, Qatar  
e-mail: [ahmad.alown@qu.edu.qa](mailto:ahmad.alown@qu.edu.qa)



a member of the contributors' board and his commitment to pay a known amount (the premium) on a *Tabarrù* basis and its proceeds in favor of the insurance account, provided that he pays when the risk occurs while, he has compensation according to the insurance policy, the technical bases and the company's articles of association" (Al-Qarra Daghi 2006, p. 203).

According to Islamic Financial Services Act (IFSA 2013, Chapter, 1 p. 48) *Takaful* is "An arrangement based on mutual help, whereby a *Takaful* participant agrees to contribute to a mutual fund for provide common financial advantages paid to *Takaful* participants or beneficiaries upon the occurrence of pre-agreed events". Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) defines *Takaful* as: "Islamic Insurance is a process of agreement among a group of persons to handle the injuries resulting from specific risks to which all of them are vulnerable. A process, thus initiated, involves payment of contributions as donations, and leads to the establishment of an insurance fund that enjoys the status of a legal entity and has independent financial liability. The resources of this fund are used to indemnify any participant who encounters injury, subject to a specific set of rules and a given process of documentation. The fund is managed by either a selected group of policyholders, or a joint stock company that manages the insurance operations and invests the assets of the fund, against a specific fee. As for Conventional Insurance, it is a *Mu'awadah* (mutual compensation) that seeks to make profit out of the insurance operation itself, hence, is subject to *Shari'ah* rulings on financial dealings that involve *Gharar* (uncertainty). Consequently, conventional insurance is considered prohibited by contemporary *Shari'ah* scholars because it involves *Gharar*, *Riba* and *Maysir* (Gambling)". (AAOIFI *Shariah* Standards 26, p. 678).

The content of most of the preceding definitions aligns with the first article of the International Islamic Fiqh Academy, which sets out the *Shariah* provisions and regulations for cooperative insurance's foundations. Islamic insurance is defined (Resolution Concerning *Shariah* Provisions and Regulations for the foundations of 1435 AH, corresponding to/2013 AD) "Cooperative insurance" is defined as "the participation of a group of people who are exposed to a specific risk or danger, provided that each of them pays a set amount as a form of cooperation without financial gain, to compensate for damages that may occur when the specific hazard is discovered in accordance with binding agreements and applicable laws". However, it is notable that the Council's resolution did not use the word "undertaking to donate," which is one of the issues raised against those who used the term, because for them this can change the nature of *Takaful* from *Tabarrù* contract (Unilateral contract) to *Mu'awadah* Contract (bilateral).

### ***1.1 The Legal Ruling on Takaful***

Contemporary jurists differed in their rulings on Islamic cooperative insurance (*Takaful*). Majority of scholars believe that *Takaful* is permissible, on the other

hand, Some of them argue that Takaful is like commercial (Conventional) insurance in term of application, which make it prohibited (Al-Thunayan 1993, p. 284; Al-Dabiani 1423 A.H pg. 160). Those scholars argue that renaming this contract as a cooperative contract does not make it any less similar to conventional insurance, which is prohibited rather, the reason for prohibiting of commercial insurance is also in Takaful, including *gharar* (uncertainty) because the basis of so called takaful is a biliteral contract (Muàwadha) and not a *Tabarù*, (Unilateral). On the other hand, majority of contemporary scholars and jurists, believe that Takaful is lawful because the contract is based on *Tabaru*, and thus does not influence the uncertainty that renders the contract unlawful (Al-Darir 1990, Shakra 2016) based on the fact that the objective of Takaful is to lessen the severity of the risks and losses that affect one of the participating members unlike conventional insurance, which strives to maximize the profit for insurance company.

According Al-Darir (1990) governments in the Islamic countries is to take the responsibility of Takaful for Muslim community. This help less-privileged citizen and those that cannot afford to pay the premium to get covered and assured.

## ***1.2 Jurisprudential Basis of Cooperative/Takaful Insurance***

Contemporary jurists have varied opinions regarding their doctrinal basis of cooperative insurance (Takaful). According to many contemporary experts, the doctrinal basis of Takaful has been adapted to the concept of commitment or promise to donate by participants or contributors “Iltizam bi al-Tabarù (Islamic Financial Services Board (IFSB), Standard of Guiding Principles for Takaful Insurance Regulations 2009; AAOIFI 2017). So that this contribution is in the best interests and protection of individuals who have been harmed. The tabarù fund then appoints a person, whether one of the members or another legal entity, to manage the fund on behalf of the participants on the basis of *Wakala bi al-istithmar* (agency with a fee) or *Mudaraba* (Profit sharing). The latter invests the fund for the benefit of the participants as per the agreement between him and the Fund. It’s important to note that the firm or legal entity which is authorized to invest; is responsible for all costs associated with this activity, while the fund is responsible for the agency fee on behalf of the agent. However, if the fund and the person administering the fund have agreed to a *Mudaraba* contract, the *Mudarib* will take a percentage of the profit as agreed, and in the case of a loss, the fund owner will absorb the loss as this principle is already known in the *Mudaraba* contract (AAOIFI 2017, p. 369). It should be highlighted that Takaful is based on contribution with mutual consent, and if there is any uncertainty (*Gharar*), it is forgiven.

### 1.3 Takaful Models

It has been fully examined by scholars who allowed Takaful Islamic insurance that the primary objective of Takaful is assisting each other (Ta'awun) unlike conventional insurance which is to maximize the profit. There are many models used by Takaful companies such as Mudorabah, Wakalah, wadiah, waqaf and Ju'alah model.

### 1.4 Mudaraba Model

According to Shariah, the Mudaraba Contract is a permissible. "Mudaraba" is a special kind of partnership where one partner gives money to another for investing it in a commercial enterprise. The investment comes from the first partner who is called "rabb-ul-mal", while the management and work are an exclusive responsibility of the other, who is called "Mudarib". It is necessary for the validity of Mudaraba that the parties agree, right at the beginning, on a definite proportion of the actual profit to which each one of them is entitled. No particular proportion has been prescribed by the Shari'ah; rather, it has been left to their mutual consent. The profit between rabb-ul-mal and Mudarib shall be based on the mutual consent while loss will be borne by rabb-ul-mal and Mudarib will bear the loss of his work (Fig. 1).

In this model, the relationship between shareholders is a contribution relationship with mutual assistance which means that any shareholder can donate to establish the Takaful Fund. As a result, contributors will appoint someone to manage the Fund "Takaful operator." They have a Mudaraba contract with this operator, under which the latter manages the fund and pays compensation to "Shareholders" in the event of a risk, as well as investment funds. Profits are distributed between the shareholders "Rabb-ul-mal" and the Takaful Operator in line with agreed ratio, while the insurance surplus is returned to the Fund. It is necessary to note that the Mudaraba model is

Fig. 1 Modified Modaraba structure

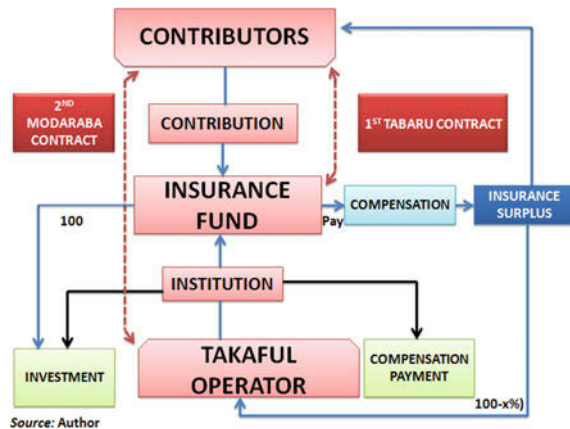
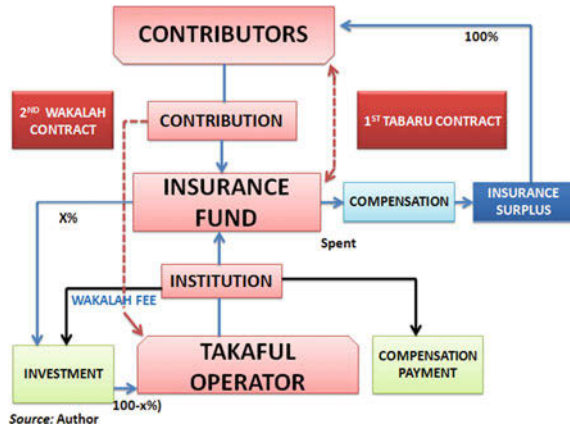


Fig. 2 Wakala model



the first investment model of Takaful companies in Malaysia (Ali 2016, P. 6). To minimize the risk of not getting any profit by the Takaful operator this model has been modified so that insurance surplus will be shared between Takaful operator and the participants. This arrangement raised some of Shariah issues in the applications of this structure in the takaful industry (Engku Ali and Odierno 2008) (Fig. 2).

The wakala Model is a common Takaful company structure in which the shareholders contribute to establish the fund on a *Tabaru* basis. The relationship between them is that of a contribution contract, with the fund acting as a legal entity in this circumstance. The fund then designates a person who is known as the “Takaful Operator”. The relationship between the Fund and the Takaful operator is defined by the exchange (Bilateral) contract “Wakalah on the basis of fee/Wakalah to investment” in which the Takaful Operator invests the funds and receives a fee under the Agency agreement. It also has the authority to subscribe and pay compensation, as well as operational costs retakaful fees. The insurance surplus is returned to the fund in this model. It can be differentiated between the first and second model in terms of application, that the mudaraba model allows the Mudarib to share the profit unlike the wakala model, while the wakala model enables the agent to take the wages (Fee) before starting work, unlike the mudaraba structure; It is not permissible for the Mudarib to take anything except in the case of achieving profits. It should be noted that the Shariah Standards of the Accounting and Auditing Organization approved these two models (Shariah Standard No. 26 Islamic Insurance, paragraph 3) in which Islamic insurance described by saying:

“Islamic insurance is based on the commitment of the participants to make donations for the sake of their own interest. The participants, therefore, protect their group by payment of contributions that constitute the resources of the insurance fund, and assign the management of that fund to a committee of policyholders, or to a joint stock company that possesses the license of practicing insurance business. In the latter case, the company assumes this job on the basis of a remunerated Wakalah (Agency) contract. In addition to managing the insurance operations, the committee of policyholders or the company also assumes the responsibility of investing the assets of the fund through Mudaraba or investment agency.”

## 1.5 Issues Related to *Takaful Models*

Some contemporary scholars have suggested that contemporary cooperative insurance applications are no different from prohibited commercial insurance applications since the promise to donate is considered as *Mua'wadah* contract, this is not a pure donation, (Rafiq al-Masry p. 99) has stated that: "Those who allow cooperative insurance and those who oppose commercial insurance agree on one thing: cooperatives are like donations in that there is forgiveness of uncertainty (*Gharar*), which is not forgiven in exchanges (*Muawada'* contracts), and this is a consideration, because (I donate to you and you donate to me) is not from donations, but rather from *Muawadah'* contract". Abdullah bin Manee (p. 16) confirms this by stating that "cooperative insurance is in fact an insurance company made up of its subscribers."

In addition to the above, it is noted that the contributor is the same beneficiary. This means that the contributor is "undertaking to donate" the "insured," and when he takes compensation, he becomes "the insured," so the donor is the same as the beneficiary of the donation, and this violates the principle of *Tabaru*. Moreover, the commitment and promise to donate has the resembling of bilateral contract (*Mua'wada*), which is offset by the Fund's promise to donate to it, which is to pay compensation in case of loss or risk. Hence this structure has moved from being a pure donation to another contract, then the *gharar* (uncertainty) on the basis of which conventional insurance is prohibited, is present in this structure as well. AAOIFI Standard (Shari'ah Standard No. (26) Islamic Insurance, paragraph 4/C): stated that "The relationship between the policy holders and the fund which takes the form of commitment or promise to donate at the stage of making contributions, and indemnification commitment at the stage of providing compensation for injury as per regulations and underlying constituent documents". This paragraph states that the policyholders and the fund have an undertaking to donate, which paved the way for some contemporary scholars to assume that this relationship is not different from a compensatory relationship (Zaid and Azim 2011, pg. 7).

Furthermore, it may be argue that although the relationship between the two parties is based on the commitment to donate, the participant's commitment to donate is complete in the sense that it contributes to the establishment of the fund, whereas the commitment to compensation by the fund is uncertain; it may fall or may not fall, and this gets it out of the compensatory circle. On the other hand, it might be argued that although the relationship between the two parties is based on the commitment to donate, the participant's commitment to donate is complete so that it contributes to the establishment of the fund, while the commitment to compensation by the fund is possible; It may or may not fall, and this gets him out of the compensatory circle. In addition, the compensation may be greater or less than the amount provided by the participants, preserving the fund-participant relationship as one of donation rather than compensation. However, some contemporary jurists might argue that undertaking by participants to donate might change the nature of of the contact from donation to bilateral contract. (*Mua'wada* contract) and not a *Tabaru*, (Zaid and Azim 2011, pg. 7).

## 1.6 Insurance Surplus

The insurance surplus is what remains after paying compensation, operating expenses and others. In the Mudaraba model, Takaful company does not have to take from the insurance surplus because the contract between it and the participants is a contract of Mudaraba (Profit sharing). Rather, he is permitted to have a predetermined percentage/ratio of the profit, with the distinction between the profit and the insurance surplus being that the latter is what enhanced the capital in the insurance fund after paying compensation and other administrative expenses other than the profit. Some Takaful operators use modified *mudaraba* model, in order to get a return from the surplus. This is not in line with the concept of *Mudaraba* that is allowed by shariah scholars. In other hand, some Takaful operators return the insurance surplus to the participants, while others share it between the participants and the “Takaful operator.” Using the *Jualah* contract basis as an incentive for Takaful operator. However, Some Takaful operators return the surplus to the participants’ fund.

## 1.7 The Usage of Zakat Fund for Cooperative Insurance

Zakat literally means growth, purification, blessing, righteousness.

Technically, there are several definitions of Zakat according to different schools of thought, However, it can define as “an obligatory right on a specified wealth at a specific period to seeking the pleasure of Allah Almighty and purify the soul, money, and society.” Zakat is one of the pillars of Islam. Quranic mentioned recipients of Zakat (*Asnaf*). Allah Almighty says:

﴿إِنَّمَا الصَّدَقَاتُ لِلْفُقَرَاءِ وَالْمَسْكِينِ وَالْعَامِلِينَ عَلَيْهَا وَالْمَوْلَاتِ  
قُلُوبُهُمْ وَفِي الرِّقَابِ وَالْغَارِمِينَ وَفِي سَبِيلِ اللَّهِ وَابْنِ السَّبِيلِ  
فَرِيضَةً مِّنَ اللَّهِ وَاللَّهُ عَلِيمٌ حَكِيمٌ﴾

The Sadaqat (prescribed alms) are (meant) only to be given to the poor, the needy, to those employed to collect them, to those whose hearts are to be won, in the cause of the slaves and those encumbered with debt, in the way of Allah and to a wayfarer. This is an obligation prescribed by Allah. Allah is All-Knowing, Wise. (At-Tawbah: 60).

There are several goals and objectives of Zakat, some of which are linked to the individual and others of which are related to the community. One of the social goals of Zakat is that it establishes the general interests of Muslims, which may be due to preserving the religion as in the category which is described in the holy Quran namely: “In the way of Allah/Fi sabili Allah” and sympathy for the poor and needy, as in the category which is mentioned in the holy Quran namely: “Poor and

Needy” as well as encouraging reformers among the members of society which is also mentioned in the Holy Quran namely: “those encumbered with debt”.

Al-Qaradawi (2001, p. 44) believes that Zakat may be an effective instrument for promoting Muslim social harmony and wellbeing.

This, in turn, is thought to be an alternative or complement to the cooperative insurance fund at the moment, with Zakat being able to “carry out a unique type of social insurance against disasters and life’s surprises, and It was the first sort of insurance that the world had ever seen as well as the temporal priority of this insurance that Islam provided for its descendants through the Zakat system. We consider that the insurance provided by Islam for its offspring through the Zakat system to be greater, more extensive, and comprehensive than the insurance provided by the West in the current day with stages after stages. Insurance in the Western point of view is not compensated except by those who actually participated in paying specific premiums to the insurance company. When compensation is given, the afflicted person is compensated based on the amount he was insured for, not on his losses and needs. Whoever had secured a huge amount received a greater compensation, and whoever had a lesser amount received a smaller portion, no matter how severe his tragedy or the magnitude of his need. This is because Western insurance is based on trade (Bilateral transaction) and profit from the insured persons. In Islam, insurance is not based on the requirement to pay previous premiums, and the individual afflicted by the disease is only provided what he needs and the amount he is forced to break, and his distress is alleviated. Given the needs of individuals for Takaful (Islamic insurance) in this era, structuring contemporary Takaful insurance on the basis of Zakat meets many of the valid aims under Zakat legislation.

Micro-takaful activity is quite limited and small, Despite the fact that Malaysia is one of, the leading countries in Takaful industry globally (Ahmed 2016) but there is no enough attention to Micro-Takaful industry. Hence the researchers believe that there is a need for this type of micro-takaful, because it helps to achieve financial inclusion as well as assist less privileged in the Muslim community. Rom and Abdul Rahman (2012) suggested that the Malaysian government engages in micro-takaful in Malaysia, either by formulating a strategy to assist these poor people or by using Zakat because people’s need for Takaful is as important as their need for food and drink in today’s world.

### ***1.8 Structuring Insurance in the Zakat Fund***

As a complementary to the existing takaful models using Zakat in structuring Takaful may be a suitable model because objective of Zakat is very close to Takaful (Kamal 1986, p. 130). Furthermore, Takaful aims to protect the Islamic society in general from need, and is based on protecting all Muslims from disasters and harms and breaking up the risks that arise from them, and this is what can be found in using Zakat as a model for Takaful (Mohammed Beltaji 2008, p. 168). This structure employs the Zakat Fund for Takaful, so that it does not impose any premium on the beneficiaries as

is currently applied in takaful, it will be taken from the Zakat funds “Zakat money” to establish the Takaful Fund. Then, wakala or Mudaraba model can be used by designating someone to administer this fund; this money could also be invested for the benefit of the Takaful beneficiaries, provided that the Zakat institution through its shariah committee allow such investment. This model can achieve the principle of pure *Tabaru* which is one of the shariah issues raised by some researchers on the existing takaful models. The objective of investing the fund is to preserve the collected Zakat funds, rather than to make a profit, as is the case with conventional insurance companies. Permissibility is based on the permissibility of investment of Zakat money by the zakat authority before distributing it to the recipients.

## 1.9 Fund Segregation

This model distinguishes between two funds: the investment fund and the savings and risks fund. The Zakat investment fund is used to invest and enhance Zakat funds in order to ensure the sustainability of the fund and efficiency in covering compensation for eligible recipients (Asnaf). The risk fund is utilized to compensate the deserving members of Asnaf.

However, based on the community’s needs and requirements, the authorized organization (Such as Zakat institution) may impose a certain requirements for the entitlement. The authorized entity may additionally designate the Takaful fund as exclusive to a certain type of insurance or risk for example, health, in order to serve the Zakat beneficiaries better, taking into account the rules and regulations of each country.

## 1.10 Shariah Issues on the Model

### 1.10.1 Requirement of “Tamlik” for Zakat Recipient

“Tamlik” is from Arabic word "م ل ك" and it refers to a thing’s ability to be controlled and tyrannized (احتواء الشيء). Technically, according to Ibn Najim, (n.d, p. 246) it is “ability established by the Statuary trustee (i.e. Lawgiver), starting to act, With the exception of an impediment”. In this sense, it entails placing money in the hands of the zakat recipients (transferring the ownership), so that they can dispose of it themselves or on their behalf. Hence, the jurists differed regarding the consideration of “*Tamlik*” in Zakat based on following statements:

According to Hanafi, Shafi and Hanbali “*Tamlik*” is a condition for all Zakat recipients (Al-Sarakhsi 1993 vol. 2, p. 202; Al-Hasakfi 2002 AD, p. 126; El-Sherbiny 1958 AD, Vol. 3, p. 106; Al-Mardawi 1995, pg. 246). On the other hand, Ibn Taymiyyah (1995, V. 25, p. 80), opined that “*Tamlik*” is a condition for the first four categories only, while Maliki added Ibn al-Sabil (Al-Wancharisi 1981 AD, vol. 1, p. 319). Al-Shaukani (2004 AD, p. 264) opined that *Tamlik* is not a condition for zakat. This



is also the viewpoint of several contemporary scholars such as: Al-Mawdudi (1985) and other contemporary scholars (Zwieta and Zakariyah 2020).

### 1.11 The Reasoning for the Different Points of View

The word “Lam ل” mentioned in the verse below is the reason for the various points of view.

﴿إِنَّمَا الصَّدَقَاتُ لِلْفُقَرَاءِ وَالْمَسْكِينِ وَالْعَامِلِينَ عَلَيْهَا وَالْمُؤَلَّفَةِ  
قُلُوبُهُمْ وَفِي الرِّقَابِ وَالْغَارِمِينَ وَفِي سَبِيلِ اللَّهِ وَأَبْنِ السَّبِيلِ ۗ  
فَرِيضَةً مِّنَ اللَّهِ وَاللَّهُ عَلِيمٌ حَكِيمٌ﴾.

The Sadaqat/Zakat (prescribed alms) are (meant) only to be given to the poor, the needy, to those employed to collect them, to those whose hearts are to be won, in the cause of the slaves and those encumbered with debt, in the way of Allah and to a wayfarer. This is an obligation prescribed by Allah. Allah is All-Knowing, Wise. (At-Tawbah: 60).

According to Hanafi, Shafi’I and Hanbali the word “lam” in the verse is for transferring ownership “Tamlik”, and “Tamlik” cannot be materialized except by distribution of the Zakat to the beneficiaries and transferring the ownership of the money to them directly, while those who did not stipulate “Tamlik” as a condition believe that the “lam” in the verse is not for “Tamlik”; This is because the word “انما” represents “exclusivity” which indicates that the verse is intended to convey that Zakat is only distributed to certain categories.

### 1.12 Solving the Issue of “Tamlik” Condition

Muslim scholars discuss about “Tamlik” whether is a condition in zakat distribution or not. This study believes that the opinion of those who did not require “Tamlik” is more appropriate and applicable in our contemporary time, considering the fact that it does not contradict the Maqasid of Zakat (Objectives and goals of Zakat). This opinion is also supported by contemporary jurists’ point of view in permissibility of investment of zakat fund for the benefit of zakat recipients. In addition to that, the scholars allowed the disbursement from the “Ibn Sabil” category to prepare the invaders without transferring the ownership of zakat money to them themselves.

It should be noted that the word “lam ل” in the verse could signify “Tamlik” in Arab language, and it could also represent “consequence عاقبة” or “Exclusiveness اختصاص” (Abu Hayyan 1420, V 5, pg. 442). It can be said that the verse is not an evidence for those who claim that “Tamlik” is a condition for all zakat recipients, at

the same it is not an evidence for those opined otherwise, hence, this requires finding evidence that distinguishes the statement between the two previous opinions.

To conclude, it can be said that even though *lam* is for “*Tamlík*”, is a condition for the first four zakat recipients, but not for the others. However, the text did not specify whether the “*Tamlík*” is for individual ( التملك الفردي ) or collective ( التملك الجماعي ). This paper suggested that upholding the collective ownership is more appropriate ( التملك الجماعي ), because the main objective in this matter is to cut off ownership from the zakat payer, and since the zakat payer has transferred the ownership to the Zakat authority, so the issue of ownership here is considered solved. Hence, the right to distribute the zakat fund to the recipients is under authority of Zakat institution. This also in line with what Al-maududi suggested in so far it will cater and preserve the interest of zakat recipients at large (Al-Mawdudi 1985 p. 55).

In addition to the above, Jurists allowed of repaying the debtor’s debt from the Zakat money, and paying it directly to the debtor without transferring the ownership to the or permission of the debtor (Zakat recipient).

## 2 Conclusion

After discussing the potential of utilization of zakat fund in Islamic micro Takaful, the study concludes that there is no shariah issue in utilization of zakat fund in micro-Takaful. This study opined that (*Tamlík*) is not a condition in all zakat recipients (*Asnaf*), this is in line with opinion of Ibn Ibn Taymiyyah, Maliki school of thought and some contemporary scholars.

Study also suggest that collective ownership ( التملك الجماعي ) can be considered rather than individual ownership, this also supported by jurists’ point of view in permissibility of investment of zakat fund for the benefit of zakat recipients.

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# The Extent of Kuwaiti Islamic Banks Restrict to the Use of Islamic Financing Tools in Their Financial Operations: A Field Study



Osama Al-Rashidi, Habeebullah Zakariyah, Ashurov Sharofiddin, and Azman Mohd Noor

**Abstract** This research aims to identify the extent of Kuwaiti Islamic banks adhere to the use of Islamic financing tools in their financial operations. The study population consists of all (5) banks listed on the Kuwait Stock Exchange. As for the study sample, (100) respondents were selected from Financial managers, accountants and workers in finance and investment departments work in these banks. The questionnaire was used as a tool for collecting primary data. The results showed that Kuwaiti Islamic banks adhere to the use of Islamic financing tools represented in Murabaha, Musharaka and Mudaraba in their financial operations to a high degree. The study recommended that Kuwaiti Islamic banks should be encouraged to play a more role in Murabaha operations and find appropriate solutions to technical obstacles and culture-related procedures that prevent the provision of Islamic financing through Murabaha.

**Keywords** Kuwaiti Islamic banks · Islamic Financing tools · Financial operations

## 1 Introduction

The modern management cultures have contributed to make a qualitative shift in Islamic banks to improve their financial operations in the operating environment, the most important trend is the Islamic approach and its subsequent use of banking terms based on the Islamic approach and which enhanced the strategic capabilities of the Islamic banks.

The high prevalence of the Islamic banks has also led to play a more role in financing a various types of projects within Islamic and legal frameworks and visions,

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O. Al-Rashidi · H. Zakariyah (✉) · A. Sharofiddin · A. M. Noor  
International Islamic University, Kuala Lumpur, Malaysia  
e-mail: [habzak@iium.edu.my](mailto:habzak@iium.edu.my)

A. Sharofiddin  
e-mail: [ashurov@iium.edu.my](mailto:ashurov@iium.edu.my)

A. M. Noor  
e-mail: [azmann@iium.edu.my](mailto:azmann@iium.edu.my)

based on the Islamic approach, in order to carry out their fundamental role for the Islamic society on one side, and on the other side, to meet the needs of individuals with Islamic leanings to obtain financing that meets these needs to set up various projects.

Islamic banks has certain characteristics and features, they do their banking in a different way than the commercial banks, the most importantly that they don't trade in debt, also they don't deal with usury in any way either directly or indirectly. Furthermore, the relationship between the Islamic bank and its deposit holders aren't based on a debtor and a creditor., it's a sharing and trading relationship in the form of Murabaha, Mudaraba or Musharaka. They are committed to this in the true guidance in several verses of the Holy Koran. Such as "But Allah has permitted trade and has forbidden interest". (Al-Baqarah, v.s:275), "O you who believed, do not consume usury, doubled and multiplied, but fear Allah that you may be successful" (Al-Imran, v.s:130).

The tools used by Islamic banks in financing their financial operations represent a sophisticated intellectual approach in organized banking work in order to achieve the bank's goals and objectives, as the application of the Islamic approach requires integrated approaches that include a clear ways and methods to reach the results that these banks wish to achieve even if there are an internal and external variable affecting their performance.

Islamic banks can develop the current financial services, also they can create the new financial tools based on the basic Islamic working methods in carrying out investment and financing operations, so that they resort to use the financial tools while enhancing their capabilities and move towards providing the Islamic financial services as they are the financial intermediary representing by performing a financial function mediating between investors and savers. In order to achieve this, these banks need to deal with a new and alternative forms of borrowing with interest.

Kuwaiti Islamic banks are considered to be the lifeline of the Kuwaiti national economy and it represents an external interface of the State with its branches which spread in a large number of countries around the world, with more than 50% of the labor force in the private sector in the State of Kuwait, the Kuwaiti banking sector also includes one of the most technology-intensive economic sectors and human resources training.

Therefore, this study identifies the extent of Kuwaiti Islamic banks adhere to the use of Islamic financing tools in their financial operations and it shows their great importance as an essential base for improving the financial performance of these banks. Accordingly, the reliance on the Islamic approach represents a set of practices and activities based on the Islamic banks' long-term orientations within visions and perspectives capable to achieve their goals.

## 2 Problems

The Islamic approach is considered to be a basic need and an urgent necessity for different sizes and levels of banks, this is because that the application of this approach has to do with moving their works and achieve their goals within an Islamic directions and visions. The use of Islamic financing tools in banks' financial operations which performed by the Kuwaiti Islamic banks is also considered as one of the important goals, this enables them to achieve their goals through Murabaha and maximizing market share, and the ability to attract a new customers, also to outperform over the rival banks.

Consequently, the absence, omission or the low spending to keep pace with the demands of the Islamic approach which based on the Islamic law by the Kuwaiti Islamic banks' departments will reflected on her performance and it will reduce their returns and competitiveness, which leads them to falter, financial hardship and possibly bankruptcy due to their inability to compete, survival and investment.

It is known that the Kuwaiti Islamic banks seek to improve the quality levels in their banking services to their customers in order to gain their satisfaction with the provided banking services, but in order to do that, the Kuwaiti Islamic banks have to study some things that can lead to their goals, these include the use of Islamic financing tools in financial operations.

## 3 Questions

Based on the above, the study's problem is determined by identifying the extent of Kuwaiti Islamic banks restrict to the use of Islamic financing tools in their financial operations through answering the following questions:

- 1-What is the extent to which Kuwaiti Islamic banks adhere to the use of Murabaha as a tool of Islamic financing in their financial operations?
- 2-What is the extent to which Kuwaiti Islamic banks adhere to the use of Musharaka as a tool of Islamic financing in their financial operations?
- 3-What is the extent to which Kuwaiti Islamic banks adhere to the use of Mudaraba as a tool of Islamic financing in their financial operations?

## 4 Objects

The main objective of this study is to identify the extent of Kuwaiti Islamic banks adhere to the use of Islamic financing tools in their financial operations through achieving the following sub-goals:

- 1-Identifying the extent of Kuwaiti Islamic banks adhere to the use of Murabaha as a tool of Islamic financing in their financial operations.

2-Identifying the extent of Kuwaiti Islamic banks adhere to the use of Musharaka as a tool of Islamic financing in their financial operations.

3-Identifying the extent of Kuwaiti Islamic banks restrict to the use of Mudaraba as a tool of Islamic financing in their financial operations.

## **5 Importance of Research**

Kuwaiti Islamic banks adhering in the use of Islamic financing tools in their operations is one of the most important topics, as the necessity requires expanding the application of related concepts in Kuwaiti economic environment in order to use them in developing the economic practice which seen as one of the most important requirements of the current era as a term often spoken, will give indications with their meanings.

## **6 Research Hypothesis**

This research attempts to test the following hypothesis:

1-Kuwaiti Islamic banks don't adhere to use Murabaha as a tool of Islamic financing in their financial operations.

2-Kuwaiti Islamic banks don't adhere to use Musharaka as a tool of Islamic financing in their financial operations.

3-Kuwaiti Islamic banks don't adhere to use Mudaraba as a tool of Islamic financing in their financial operations.

## **7 Methodology**

This study is considered one of the field studies in which the researcher relied on the descriptive analytical method by gathering information from the available resources, as well as the analytical approach for quantitative data in order to identify the extent of Kuwaiti Islamic banks adhere to the use of Islamic financing tools in their financial operations.

## **8 Study and Sample Community**

This study's community consists of all 5 banks listed on Kuwait Exchange Stock which are Ahli United Bank, Kuwait International Bank, Kuwait Finance House, Boubyan Bank and Warba Bank. As for the sampling unit, a random sample of

financial managers, accountants and employers in the finance and investment departments working in these banks was selected. A rate of 20 questionnaires per bank with its branches spread in Kuwait governorates were distributed, the number of the distributed questionnaires reached 100 resolution distributed online due to Corona pandemic, as well as 90 questionnaires were retrieved with 90% of the total distributed questionnaires.

## 9 Study Tool, Honesty and Consistency

A resolution was developed covering the hypotheses on which it was based on, by using evaluative terms to determine the importance of the sample's answers that have been relied upon to fill on the questionnaires. The resolution was also presented to a number of university professors, some practicing experts and specialists in banking and financial studies, their suggestions and recommendations regarding its paragraphs were taken into consideration whereas the necessary adjustments have been done. The extent of dependence on this tool was selected by using the Kronbach Alpha factor of 90%, which is excellent!

## 10 Previous Studies

The study of Mohammad (2012) aimed to identify the reality and future of Islamic banks within the global economic frameworks, it examined the world's economic situation and its relationship to Islamic banking, the reality and basic characteristics of Islamic banks and the future of Islamic banking within the global economic landscape. The study showed that there is a growing demand for Islamic financial services around the world after the successes of the Islamic banking industry over the past decades and recognizing its important role in the global economic scene.

The study of Al-Bakar (2014) aimed to highlight the implications of economic systems for the legal form of economic enterprises, their financing tools, economic reform policies and banking methods for financing SMEs. The study showed that there were difficulties in financing Islamic banks and institutions for micro-enterprises, which are the product pricing policy, their employment and its small numbers wage policy and low banking and marketing awareness. The ways to overcome them are developing the available financing modalities to meet the needs of the various economic sector and providing an appropriate financing models for such institutions.

The study of Ghobakhloo (2014) aimed to assess the relevance of Pakistan's current business environment to the application of sharia law in financing. This study concluded that there is a dominance of traditional banks in Pakistani banking sector, this means that the most influential, problematic and the main constraint in the way of strengthening funding based on Islamic law is the prevalence of traditional



banking systems, it turns out that Islamic banks in Pakistani market don't invest on a participatory basis in profits and losses as a result of increasing losses, and also it turns out that there is no confidence in partner's ability to participate.

The study of Al-Beltajy (2015) showed the importance of evaluating performance of a number of tools used to invest in Islamic banks and suggest certain basis and criteria for assessing the performance of investment tools in Islamic banks (in formulas of Murabaha, Mudaraba and Musharaka). It concluded that Murabaha is a preferred formula for Islamic banks and clients. By contrast, the use of Mudaraba in financing has been limited due to its high risks and the lack of comprehension of its application by many employees and clients with the concentration of its use to finance the corporate sector.

The study of Widiarto and Emrouznejad (2016) aimed to demonstrate the financial and social efficiency of Islamic microfinance institutions and developing a form of Islamic finance as an alternative solution for the global poverty reduction efforts. The study showed that in the last 30 years, many Islamic financial institutions have been established with a distinctive and unique capacity to achieve financial sustainability goals.

The study of Rababa'a and Kiwan (2018) aimed to generate money in Islamic banks. It set out the sharia provisions in generating money from deposits, the opinions of those opposed and supporters of that process have been clarified. It concluded that the Islamic banks which finance Musharaka and Mudaraba have less ability to generate money than that of traditional banks and they have less damage on the national economy if they generate money because financing helps to increase the real production against generating money, this creates a balance between the commodity and the monetary side, unlike what traditional banks perform.

The study of Mashal (2019) also aimed to identify the importance of Islamic finance in the global financial system, and to investigate the phenomenon of Islamic finance based on sharia. The study showed that Islamic law is becoming global and it is spreading globally. It showed that there are many aspects of the Islamic finance commission, including the issue of the spread of Islamic banking operations in many countries of the world, as well as the importance of adopting Islamic jurisprudence, finance, global standards and integration of Islamic finance. The study also showed that there are a number of obstacles facing Islamic finance and financial integration.

## 11 Research Gap

What distinguishes the current study from what was stated in the previous studies can be summarized according to the following fields:

**1-Subjects:** Most previous studies have discussed or presented the variables of the study and how they can be used to understand forms of Islamic finance, while the current study attempted to study and analyze the extent of Kuwaiti

Islamic banks restrict to the use of Islamic financing tools in their financial operations, through a field study in these banks.

**2-Study environment:** The previous studies related to study variables or some of its dimensions were conducted in Western environment where the financial concepts and their instruments are rapidly developing. While the current study was carried out in an Eastern environment specifically in the Kuwaiti environment where the Islamic banking sector has grown significantly during the last three decades.

**3-Study purposes:** Most previous studies aimed to identify the distinguishing characteristics of one of the variables adopted in the current study, as well as the use of Islamic financial formulas and instruments. While the current study sought to identify the extent of Kuwaiti Islamic banks restrict to the use of Islamic financial tools in their financial operations because of the importance of these tools used by these banks in supporting the national economy of the State of Kuwait.

**4-The nature of the study community:** For the community, the majority of the previous studies selected a specific company for a case study or a time-spam survey (number of years) and for leading companies, while the current study community (Islamic banks in the State of Kuwait) represents a group of banks that are considered an important local economic sectors in the growth of the national economy of the state of Kuwait.

## 12 Theoretical Framework

### Islamic Financing Tools

The science of Islamic financial accounting and investment tools used in some banks and institutions according to Islamic law, have produced applications that promote the well-informed approach to the work of Islamic law, and it is a creation of the banking and financial system away from usurious transactions or interest on which Western banks are based (Sae'ed 2015, P1).

Many global economies' trends towards a greater share of Islamic capital and finance have increased by developing different mechanisms through which banking business is carried out to be compatible with the provisions of the Islamic sharia. The subject of offering financial services from banks, exchanges and financial markets under the slogan "Halal transactions" was also accepted by Muslim investors and capitalists, such as Murabaha, Musharaka and Mudaraba. Many Arab and Islamic countries have taken action in this area, such as Saudi Arabia, Bahain, Indonesia and Malaysia which has become the world's capital in Islamic style transactions with Islamic financing modalities to extend and include other non-Islamic countries with a major economies, such as the United States of America, India, Russia and the United Kingdom (Al-Demagh 2012, P131).

Also, the idea and method of Islamic finance applied by Islamic banks in the conduct of their business has gained a wide recognition among academia and has become an important field of new economies in colleges and universities in various

countries of the world. The launch of Islamic banks was also strongly enhanced by the International Monetary Fund's (IMF) recognition of Islamic financial indicators and the establishment of a special body concerned with financial standards related to Islamic finance and also introducing standards in Islamic banking. The establishment of Islamic investment funds is also a new and ambitious starts towards the expansion of Islamic banking (Al-Jalaf 2016, P71).

Islamic finance tools are the tools used to finance Islamic banks of various types and trends, and in their dealings derived from Islamic law, they deal in a manner consistent embodying the positive aspects (Al-Shaarawy 2012, P8).

The researcher defines Islamic finance tools as a set of ways and methods used by Kuwaiti Islamic banks in the use of their available financial resources with an expensive efficiency and a high financial returns according to Islamic formulas that comply with the provisions of Islamic sharia. The most important investment tools which were adopted in this study are (Murabaha, Musharaka and Mudaraba), the following is a simple illustration of these tools:

### **1-Murabaha**

Murabaha is a form of Islamic investment, it is considered one of the most important formulas that Islamic banks follow in investing money, as working in these banks is based on avoiding the traditional banks' existing investment methods which are based on interest as the purchases aim to achieve the interests of both parties by meeting the needs of the customer and bank for profit (Abed Al-Salam 2015, P5).

Also, Murabaha is selling at the same first price that was bought, with an increase of a profit margin for the bank, that means selling the goods at the same price at the first seller with a defined and known profit margin that is agreed upon, or this profit is a lump sum, such as a dinar or a certain percentage of the original price (Arceid 2017, P73).

The researcher defines Murabaha as a sale process that occur at the same first price at which the purchase was made with a known increased profit margin that is agreed upon between the two parties, the Islamic bank and the customer. This process occur when the customer applies to the Islamic bank for the purchase of a known goods with a specified descriptions by the customer, with a promise to actually buy those goods as Murabaha with a rate agreed upon by the two parties as the buyer pays the price in installments depending on his financial capabilities.

### **2-Musharaka**

It occurs when the bank invites customers to participate in their money with the bank through seeking the success of an investment that is consistent with the Islamic law (Al-Ghareeb 2015, P161).

It was stated in (Islamic Accounting Standard No. 3 Mudaraba 2003, P224–225) that Musharaka as an operation of Islamic banks according to accounting standards is divided into the following:

**a-Long or Short Fixed Musharaka:** It occurs when the partnership ends with the end of the agreed period, whereas the profits from the operation divided and the

losses are distributed according to the agreement, or the partnership work continues without liquidation, then the profits continues to be divided according to their attainment in each financial period, while keeping the capital constant for the duration of participation.

**b-Diminishing Musharaka Ending with Ownership:** This type of partnership in which the partner has the right to buy the bank's share in a way which its share decreases but the participating customer's share increases until this customer has the exclusive ownership of the capital.

The researcher also defines Musharaka as a formula whereby the Islamic bank in Kuwait is introduced as the financing partner in one of the projects with an expected income according to an agreement concluded with a partner so that the bank receives a certain share of the net income that is actually realizes, with its right to retain an agreed portion of the income and allocate it for paying the bank's asset of financing, it's mean that the output income is divided into the bank's share as a return on financing, the partner customer's share and the payment share of the principle financing.

### 3-Mudaraba

Mudaraba financing operations are represented by speculation in a speculative relationship between two parties, the first is the money owner who provides his money, and the second party is the speculator who works on developing money to obtain the targeted profits, so speculations comes between the owner of the money or the owners of the investment accounts and the bank that announces acceptance of such funds to invest and share the profits derived from their investment as agreed, or loading loss to the owner of money, unless there is a default, encroachment or a breach of agreed terms, then the speculator bears the failure, infringement or infraction that they cause. Mudaraba also comes between the bank as the owner of money or on behalf of the investment account holders and craftsmen, such as farmers, industrialists and others. Speculative financing through financial Accounting Standard No. 3 has been addressed in several respects including that the capital must be cash and known (Al-Sae'edi 2013).

Mudaraba is a documents issued by a speculator or a financial intermediary acting on his behalf, in order to exploit it by investing its proceeds in a particular project or activity, or in the range of activities selected by the speculator based on sharia contract. The publication of these instruments specifies the nature of the project or the type and duration of the activity in which the proceeds of the instruments are invested (Hassan 2018, P70).

The researcher defines Mudaraba as a form of contract concluded between two parties, the first is the Islamic bank in Kuwait, it is the owner of the money who doesn't have the experience of making money and investigate it, the other one is the speculator, who doesn't have the money and has the experience in managing and operating the first party's funds on the market.

### 13 Analyzes

The following are the arithmetic averages and standard deviations that were obtained:

Table 1 shows the arithmetic averages and standard deviations of the extent of Kuwaiti Islamic banks adhere to the use of Murabaha as a tool of Islamic financing in their financial operations by the study sample's response to the specific resolution questions. This variable was addressed through six phrases that achieved an arithmetic average of (3.85), this indicates that Kuwaiti Islamic banks adhere to the highly use of Murabaha as a tool of Islamic financing in their financial operations. It is noted from the table that the phrase "The Credit Section of the bank shall analyzes and examines all the financial statements submitted by the customer in a consistent manner with Islamic law" came in the first place with an average arithmetic of (4.15) and a standard deviation of (0.616), followed by the phrase that "The Credit Section

**Table 1** Arithmetic averages and standard deviations of Murabaha

| No. | statement  | Arithmetic average | Standard deviation | Relative importance | Rank |
|-----|--|--------------------|--------------------|---------------------|------|
| 1   | The bank's credit department studies all the circumstances affecting the lucrative sale, whether it's current or future, economic, social or commercial    | 3.85               | 0.613              | High                | 3    |
| 2   | The credit section of the bank set conditions and guarantees that are appropriate to customer's financial potential  | 4.14               | 0.735              | High                | 2    |
| 3   | The bank organizes bills to finance the sale in Murabaha after all the technical procedures for the form of transactions in cash sales have been completed | 3.66               | 0.672              | Medium              | 5    |
| 4   | The bank's credit department organize the second contract of the sale with Murabaha, which takes place after the customer's possession of the goods        | 3.60               | 0.735              | Medium              | 6    |
| 5   | The Credit Section of the bank shall analyzes and examines all the financial statements submitted by the customer in a consistent manner with Islamic law  | 4.15               | 0.616              | High                | 1    |
| 6   | The bank's credit section calculates the estimated costs and shows the proportion of profits expected from the process of sale in Murabaha                 | 3.75               | 0.613              | High                | 4    |
|     | <b>Murabaha</b>  | <b>3.85</b>        | <b>High</b>        |                     |      |

of the bank shall set an affordable conditions and guarantees that are appropriate to customer's financial potential" with an average arithmetic of (4.14) and a standard deviation of (0.735), the phrase that "The bank's credit department organize the second contract of the sale with Murabaha, which takes place after the customer's possession of the goods" take the last place. The above table shows the rest of the results that have been reached.

Table 2 shows the arithmetic averages and standard deviations of the extent of Kuwaiti Islamic banks adhere to the use of Musharaka as a tool of Islamic financing in their financial operations by the study sample's response to the specific resolution

**Table 2** The arithmetic averages and standard deviation of Musharaka

| No. | The statements   | Arithmetic average | Standard deviation | Relative importance | Rank |
|-----|--|--------------------|--------------------|---------------------|------|
| 7   | The best methods are chosen in order to operate and manage money, and to stay away from any activities or transactions prohibited by Islamic law   | 4.26               | 0.760              | High                | 1    |
| 8   | The bank is keen to rationalize the current investment expenditures and expenses, with the need to arrange priorities by participating in a manner consistent with the necessities   | 3.94               | 735                | High                | 2    |
| 9   | The bank invites the customers to participate in their investments and they also participate in investing their money  | 3.65               | 0.617              | Medium              | 5    |
| 10  | The bank shall divide the profits from the partnership process that expire with the end of the agreed period, and the losses are distributed according to the agreement, or the partnership work continues without liquidation | 3.87               | 0.663              | High                | 3    |
| 11  | The customers who participate in the bank seek to achieve the success of the investment process by all methods, provided that they comply with Islamic law   | 3.64               | 0.672              | Medium              | 6    |
| 12  | The transactions are based on the principle (No harm, no foul) in partnerships' operations, that means the balance between the interest of society and the bank's one  | 3.84               | 0.735              | High                | 4    |
|     | <b>Musharaka</b>   | <b>3.86</b>        | <b>High</b>        |                     |      |

questions. This variable was addressed through six phrases that achieved an arithmetic average of (3.86). Since the general arithmetic is more than 3, it can be said that Kuwaiti Islamic banks adhere to the highly use of Musharaka as a tool of financing in their financial operations. It is noted from the table that the phrase “The best methods are chosen in order to operate and manage money, and to stay away from any activities or transactions prohibited by Islamic law” came at the first place with an arithmetic average of (4.26) and a standard deviation of (0.760), followed by the phrase that “The bank is keen to rationalize the current investment expenditures and expenses, with the need to arrange priorities by participating in a manner consistent with the necessities” with an arithmetic average of (3.94) and a standard deviation of (0.735). The phrase that “The bank shall divide the profits from the partnership process that expire with the end of the agreed period, and the losses are distributed according to the agreement, or the partnership work continues without liquidation” came at the last place. The above table shows the rest of the results with respect to the arithmetic averages that have been reached.

Table 3 shows the arithmetic averages and standard deviations of the extent of Kuwaiti Islamic banks adhere to the use of Mudaraba as a tool of Islamic financing in their financial operations by the study sample’s response to the specific resolution questions. This variable was addressed through six phrases that achieved an arithmetic average of (3.80).). Since the general arithmetic is more than 3, it can be said that Kuwaiti Islamic banks adhere to the highly use of Mudaraba as a tool of financing in their financial operations. It is noted from the table that the phrase “The bank discloses its policies by using and exploiting the funds in which Mudaraba is carried out, whether self-funds or those shared with depositors’ funds” came at the first place with an arithmetic average of (4.19) and a standard deviation of (0.611), followed by the phrase that “The bank offers speculations with the investments accounts’ owners and it is declared to accept such funds in order to invest them and share the profits derived from its investment as agreed upon” with an arithmetic average of (3.85) and a standard deviation of (0.719). The phrase that “The banks trades speculative instruments after closing the subscription, allocating instruments and investing their proceeds until the date of liquidation” take the last place. The above table shows the rest of the results with respect to the arithmetic averages that have been reached.

The research hypotheses were tested using the t. test, the following Table 4 shows the results obtained when testing the hypotheses:

From the data in the above table, it is cleared that:

The calculated t value is (16.22) and its tabular value is (1.671). By comparing the calculated t value with the tabular value, it is found that the calculated value is greater than the tabular value, this is confirmed by the significance value (Sig.) that equals zero, also it is statistically significant. Therefore, the alternative hypothesis is accepted, which states that “Kuwaiti Islamic banks adhere to the use of sales as a tool of Islamic financing in their financial operations”.

**Table 3** The arithmetic averages and standard deviation of Mudaraba

| No. | The statements  | Arithmetic average | Standard deviation | Relative importance | Rank |
|-----|---|--------------------|--------------------|---------------------|------|
| 1   | The bank offers securities that enable the Mudaraba's instruments holders to obtain part of the profit, and the speculator gets the other part  | 3.65               | 0.683              | Medium              | 5    |
| 2   | The bank conducts speculations as it's the owner of the money or on behalf of investment account holders with agricultural and industrial craftsmen and others  | 3.76               | 0.772              | High                | 4    |
| 3   | The bank issues a prospectus specifying the nature of the project or the type of activity in which the proceeds of the instruments are invested, the duration of this investment, the expected profits and the distribution's methods among the speculators and instruments holders | 3.81               | 0.741              | Medium              | 3    |
| 4   | The bank offers speculations with the investments accounts' owners and it is declared to accept such funds in order to invest them and share the profits derived from its investment as agreed upon   | 3.85               | 0.719              | High                | 2    |
| 5   | The bank discloses its policies by using and exploiting the funds in which Mudaraba is carried out, whether self-funds or those shared with depositors' funds   | 4.19               | 0.611              | Medium              | 1    |
| 6   | The banks trades speculative instruments after closing the subscription, allocating instruments and investing their proceeds until the date of liquidation  | 3.55               | 0.756              | Medium              | 6    |
|     | <b>Mudaraba</b>   | <b>3.80</b>        | <b>High</b>        |                     |      |

**Table 4** The results of the t. test hypothesis test

| Statistical decision | Significant t value<br>Sig-t | Tabular t value | Calculated t value | Variable  |
|----------------------|------------------------------|-----------------|--------------------|-----------|
| Reject nihilism      | 0.000                        | 1.671           | 16.22              | Sales     |
| Reject nihilism      | 0.000                        | 1.671           | 18.91              | Musharaka |
| Reject nihilism      | 0.000                        | 1.671           | 15.55              | Mudaraba  |



The calculated t value is (18.91) and its tabular value is (1.671). By comparing the calculated t value with the tabular value, it is found that the calculated value is greater than the tabular value, this is confirmed by the significance value (Sig.) that equals zero, also it is statistically significant. Therefore, the alternative hypothesis is accepted, which states that “Kuwaiti Islamic banks adhere to the use of Musharaka as a tool of Islamic financing in their financial operations”.

The calculated t value is (15.55) and its tabular value is (1.671). By comparing the calculated t value with the tabular value, it is found that the calculated value is greater than the tabular value, this is confirmed by the significance value (Sig.) that equals zero, also it is statistically significant. Therefore, the alternative hypothesis is accepted, which states that “Kuwaiti Islamic banks adhere to the use of Mudaraba as a tool of Islamic financing in their financial operations”.

## 14 Discussion

**First:** The results showed that Kuwaiti Islamic banks adhere to the highly use of sales as a tool of Islamic financing in their financial operations. It has been determined that the bank’s Credit Department analyzes and study all of the financial data provided by the customer in a manner that is in accordance with Islamic law, and it sets conditions and guarantees that are affordable and commensurate with the customer’s financial potential, it was also found that the department examined all the circumstances that affect Murabaha sale process whether it is economic, social or commercial, current or future.

**Second:** The results showed that Kuwaiti Islamic banks adhere to the highly use of Musharaka as a tool of Islamic financing in their financial operations. It has been determined that the best methods are chose in order to operate and manage money, and to stay away from any activities or transactions prohibited by Islamic law, it was found that the bank is keen to rationalize the current investment expenditures and expenses, with the need to arrange priorities by participating in a manner consistent with the necessities. It was also found that the bank shall divide the profits from the partnership process that expire with the end of the agreed period, and the losses are distributed according to the agreement, or the partnership work continues without liquidation.

**Third:** The results showed that Kuwaiti Islamic banks adhere to the highly use of Mudaraba as a tool of Islamic financing in their financial operations. It has been determined that the policies followed by the bank by using and exploiting the funds in which Mudaraba is carried out, whether self-funds or those shared with depositors’ funds are disclosed, It was also found that the bank offers speculations with the investments accounts’ owners and it is declared to accept such funds in order to invest them and share the profits derived from its investment as agreed upon. In addition, the bank issued a bulletin on the nature of the project or the type of activity in which

the proceeds of the instruments were invested, the duration of this investment, the expected profits from it and the methods of distribution between the speculator and the instruments holders.

## 15 Recommendations

The researcher provides the following recommendations:

**First:** The need to encourage banks to play a greater role in profit operations and to find an appropriate solutions to the technical constraints and cultural measures that prevent the Islamic financing with profit. By doing the following:

- 1-The bank's credit department organizes the second contract of the sale with Murabaha, which takes place after the customer's possession of the goods.
- 2-Organizing bills to finance the sale with profits after all technical procedures relating to the form of transactions involving cash sales have been completed.
- 3-The credit department calculates the estimated costs and indicates the percentage of the expected profits from the sale process with profits.

**Second:** The serious endeavor by Kuwaiti Islamic banks to adapt to foster complementary participatory processes lead to the full coordination of the Bank's ability to deal with this Islamic financial formula. This is through increasing the attention to the following aspects:

- 1-Increasing the interest in the customers who participate the bank to achieve the success of the investment process by all methods, provided that they are compatible with Islamic law.
- 2-Inviting the customers to participate in their investments and they also participate in investing their money.
- 3-Making transactions based on the principle of (no harm, no foul) in participation processes, and balancing the interest of society with that of the bank.

**Third:** Providing an appropriate banking environment in the Kuwaiti Islamic Banks and providing high skill levels to the speculator or the financial intermediary on his behalf. Also, exploiting documents issued and investment in activities selected by the speculator based on legitimated speculative contract. By focusing on:

- 1-Trading the speculative instruments after closure of subscription, allocating instruments and investing their proceeds until the date of liquidation
- 2-Offering securities that enable Mudaraba's instruments holders to get part of the profit, and the speculator get the other part.
- 3-The bank holding speculations as the owner of the money or on behalf of the investment account holders with agricultural and industrial and other craftsmen.

**Fourth:** Establishing an independent department in Kuwaiti Islamic banks to formulate plans, policies and programs to ensure adherence to the use of Islamic financing tools in their financial operations.

**Fifth:** Strengthening the links between Kuwaiti Islamic banks in Arab States and other countries to cooperate in the use of Islamic financing tools, by taking advantage of its wisdom and reducing their risk to its financial operations.

**Sixth:** Promoting financial stability, supporting structural reform measures and providing a high degree of openness in Kuwaiti Islamic banks to ensure the optimal use of Islamic financial tools.

**Seventh:** Providing stability in the regulations related to the work of Kuwaiti Islamic banks and their use of Islamic financing tools and their clarify, and the high transparency and easy access to the necessary information and data, in addition to the high degree of administrative and financial integrity and the lack of complex routine procedures.

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# What Can Waqf Organisations Learn from Non-profit Organisations on Accountability? A Proposal for Social Impact Measurement



Nor Syahirah Zain  and Rusni Hassan 

**Abstract** Waqf organisations are not only known as a religious organisation, but also as a non-profit organisation (NPO) that are responsible and accountable to manage endowment funds and properties of the donors (waqif) to address socio-economy issues. Despite their growing prominence, they have not yet achieved their fullest potential in exerting their accountability to stakeholders. This could be attributed to the limited disclosure on how they measure and report their social impact and values. Disclosing appropriate information on the impact of waqf can garner support and increase confidence from the public to continue to invest in waqf. This paper attempts to investigate how waqf organisations can learn from NPO's experience in the adoption of performance measurement systems (PMSs) that address the issue of accountability to their stakeholders. On the back of these issues, this study attempts to propose the need for social impact measurement (SIM) to measure performance to enhance organisations' accountability towards their stakeholders. The study adopts an integrative or critical review of the literature in areas of accountability, PMS for NPOs and waqf organisations, and analysing the missing link that waqf organisations can learn from the practice of NPOs, particularly in the introduction of SIM. It is hoped that this paper is able to provide significant insight on the importance of SIM to be introduced in waqf organisations in efforts to discharge accountability to all stakeholders.

**Keywords** Non-profit organisation (NPO) · Third-sector organisation (TSO) · Waqf organisation · Performance measurement system (PMS) · Social impact measurement (SIM)

## 1 Introduction

Waqf is one of the Islamic financial instruments known for its contribution in developing Islamic nations in the past, meeting the basic survival needs of the poor and

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N. S. Zain · R. Hassan (✉)

IUM Institute of Islamic Banking and Finance, Kuala Lumpur, Malaysia

e-mail: [hirusni@iium.edu.my](mailto:hirusni@iium.edu.my)

needy despite in a mostly informal structure (Mahomed 2017). Under waqf, an owner dedicates an asset, either movable or immovable, for permanent societal benefit, while the beneficiaries perpetually enjoy its usufruct and/or income. In recent years, waqf organisations are also known as non-profit organisations (NPOs) that take responsibility and accountability in managing endowment funds and properties in Muslim countries (Adnan et al. 2013). NPOs are considered an alternative approach initiated by a group of people to meet the needs and solve issues of specific groups in the community and represent many types of organisations. These organisations include educational institutions such as universities and schools, religious institutions, health-care centres, local, state and federal governments, non-governmental organisations (NGOs), charitable institutions, trade unions, humanitarian aid agencies, foundations, cooperatives, civil rights organisations, political organisations and parties, and others that include volunteers and the third sector (Frumkin 2005; Moxham 2009; Valentinov 2011).

Waqf organisations are highly influential to the society and economy, and therefore can no longer be perceived as simply religious organisations (Arshad and Haneef 2016; Islahi 2003; Sadeq 2002). Despite the growing importance and expectations given to waqf organisations, they have not yet achieved their fullest potential in exerting their accountability to stakeholders (Arshad and Zain 2017; Yaacob 2006). According to Ibrahim and Ibrahim (2013), waqf organisations in Malaysia have been facing recurring issues on accountability and have even received recommendations from the country's Auditor General's office to continuously make efforts to improve the management and development of waqf. According to Mujahid and Adawiah (2019), the unrealised potentials and lack of trust towards Islamic social finance (ISF) institutions, including those of waqf organisations, are due to the limited disclosure on how Islamic finance institutions measure and report their social impact and values. Disclosing appropriate information on the impact of waqf can be used as a means to garner support and increase confidence from the public to continue to invest in waqf (Ramli et al. 2018).

Many organisations have used various performance measurement systems (PMSs) to discharge their accountability to their stakeholders. Some of the PMS frameworks which have been adopted or proposed for waqf organisations are similar to those for NPOs and public administration. One of the most prevalent PMSs in practice is the Balanced Scorecard (BSC). It looks into four measures namely financial, customers, internal processes and learning and growth. As time evolves, Ramli et al. (2018) proposed a Shariah-based waqf performance measurement model by integrating the BSC framework with Shariah principle. In another study, Noordin et al. (2017) developed a contingency framework for assessing performance of waqf institutions to include three important elements namely, input, output and outcome; as well as four significant performance dimensions relevant to waqf organisations namely efficiency, social effectiveness, maqasid shariah, and sustainability and growth. The authors also then proceeded to draw eight necessary steps that can serve as guidelines for waqf institutions in designing their own comprehensive PMS.

This paper looks into how waqf organisations can learn from NPO's experience for the adoption of PMS. This may potentially address the issue of accountability

to their stakeholders. While addressing these issues, this study attempts to propose the need for social impact measurement (SIM) to measure performance to enhance organisations' accountability towards their stakeholders. The study adopts a thorough and critical review of the literature in areas of accountability, PMS for NPOs and waqf organisations and analysing the missing link that waqf organisations can learn from the practice of NPOs.

This paper is structured as follows. Section 2 thoroughly reviews related works of literature about accountability, PMS and SIM in NPOs. Section 3 describes the methodology used for this study. Section 4 analyses the data and presents the research findings, which includes relating the concept of conventional accountability with Islamic accountability, the missing link in PMS in waqf, and a proposal for SIM for waqf organisations. Finally, Sect. 5 presents the conclusion of this research and suggestions for future study.

## 2 Literature Review

### 2.1 *Accountability in Non-profit Organisations (NPOs)*

Accountability is defined as the fact or state of taking responsibility for one's decisions or actions whereby one can explain when the need arises (Oxford). It is the means by which individuals and organisations report to a recognised authority (or authorities) and are held responsible for their actions (Edwards and Hulme 1996). The concept encompasses the relationship between accountant and accountee (Cameron 2004; Gray and Jenkins 1993; Ibrahim 2000; Rahman 1998). In addition, accountability also means that organisations make a commitment to respond to and balance stakeholder needs in its decision-making processes and activities, and commit to deliver (Lloyd et al. 2007). This is deemed important particularly for NPOs in maintaining public confidence and financial support by giving an account of their activities. According to Ebrahim (2003), accountability should not be seen as a reactive response to pressure such as regulation but should also be a proactive effort in sustaining public confidence in the sector (Ebrahim 2003).

Accountability can be demonstrated through many ways, including financial reporting and non-financial reporting such as social impact measurement (SIM) reporting. The level of accountability differs depending on the type of stakeholders, their interests, and the type of organisation. According to Edwards and Hulme (1996), NPOs could either have "downwards accountability", which refers to the organisations' partners, beneficiaries, employees, and advocates; or "upwards accountability", which refers to their trustees, contributors, and respective local authorities. Ebrahim (2003) has suggested that accountability involves many parties, namely the donors interested in the fund utilisation and management, the beneficiaries who are the receiver of the services, and the internal stakeholders within the organisation itself.

## **2.2 Performance Measurement in Non-profit Organisations (NPOs)**

The overview in Sect. 2.1 on accountability becomes the backbone of performance measurement in NPOs due to the pressure to be accountable to various stakeholders. Cameron (2004) considers accountability the foundation of management and governance of any organisation. In recent years, NPOs have drawn attention from society, particularly in the west, mainly due to the increased demand and motivation by the people in searching for alternative avenues to contribute to the society (Ebrahim and Rangan 2010). This development and acceptance of similar organisations, including other third sector organisations (TSOs) besides NPO into the mainstream economy require systematic monitoring mechanisms to ensure their accountability in performance social activities (Hyndman and Jones 2011).

Performance measurement systems (PMS) in NPOs are not quite the same as in for-profit organisations. In fact, they could be even more complex given their focus on social mission and values, which considers not only organisational efficiency and viability, but also the social impact of the organisation (Treinta et al. 2020). Ospina et al. (2002) recognise that many of the PMS tools, models and frameworks have been developed with for-profit companies in mind, which may or may not be suitable for NPOs. However, despite the challenges, NPOs continue to find ways to put in place a reliable PMS for their stakeholders. NPOs, similar to TSOs, are under immense pressure to portray great governance and prove their capability to convert funds into impactful activities while avoiding unnecessary wastages. At the end of the day, donors are not only interested to find out about the quality of their activities, but rather how efficient are NPOs in using those funds to meet the intended purpose. PMS generally can transform an organisation's strategy and mission into measurable key performance indicators that oversee organisational decisions (Lima and Costa 2008; Waal 2007).

Treinta et al. (2020) in their recent study on design and implementations of PMS in NPOs concluded a framework that puts together the main factors that influence the design-implementation aspects of PMS. This framework was identified via an exhaustive bibliometric and network analysis of literature review. Design-implementation factors are reclaimed from a content analysis of the paper set, where the most frequent terms were classified into three main groups: (i) social factors; (ii) stakeholder-related factors; and (iii) managerial factors. Accountability is the summary of this finding is shown in the Fig. 1 below:

## **2.3 Social Impact Measurement in Non-profit Organisations (NPOs)**

Recent discussions on the advancement of charity bodies have revolved around capturing and measuring their social impacts and values to the public (Arvidson





**Fig. 1** Framework for the factors that influence the design-implementation of performance measurement *Source* Treinta et al. (2020)

and Lyon 2014; Polonsky and Grau 2010; Teasdale et al. 2012; Westall 2009). This includes the introduction and emphasis put on social impact measurement (SIM) system in NPOs.

SIM, in general, is designed to identify changes in social impacts that result in the activities of the organisation or stakeholder (Epstein and Yuthas 2014). Most organisations usually measure the outputs produced, for example, the number of meals served to underprivileged children. However, SIM assesses the ultimate impacts of those outputs on the society and the environment, for example, the quality of the meal to children’s health.

TSOs, which NPOs also fall under, have long adopted performance measurements for their organisations due to the great pressure received to demonstrate their good governance and ability to manage charitable funds, as well as being a means to discharge their accountability in order to ensure continued receipt of funding, thus safeguarding the sustainability of their operations (Noordin et al. 2017). Performance measurement in TSOs has initially been dominated by quantitative methods, mainly concerning the practice of financial reporting. However, this has evolved over the years to include non-quantitative methods too.

Some keywords that have been used to conceptualise the construct of SIM include social value (Moss et al. 2011; Santos 2012), social performance (Husted and Salazar 2006; Mair and Marti 2006; Nicholls 2008), social returns (Emerson 2003), social return on investment (Hall et al. 2015; Nicholls et al. 2009), and social accounting (Nicholls 2009), which, although similar, could represent distinct constructs.

Maas and Liket (2011) had categorised social impact measurement methods adopted by various NPOs into the following (Table 1):

According to Maas and Liket (2011), several methods have been developed by, or for, NPOs or NGOs such as SROI, OASIS, SCBA and LEM. Other methods like

**Table 1** Social impact measurement methods adopted from Maas and Liket (2011)

| (Social) Impact measurement methods                    |  |
|--|--|
| 1. Acumen Scorecard                                    | 15. Participatory Impact Assessment                                    |
| 2. Atkinson Compass Assessment for Investors (ACAFI)   | 16. Poverty Social Impact Assessment (PSIA)                            |
| 3. Balanced Scorecard (BSc)                            | 17. Public Value Scorecard (PVSc)                                      |
| 4. Best Available Charitable Option (BACO)             | 18. Robin Hood Foundation Benefit-Cost Ratio                           |
| 5. BoP Impact Assessment Framework                     | 19. Social Compatibility Analysis (SCA)                                |
| 6. Center for High Impact Philanthropy Cost per Impact | 20. Social Costs-Benefit Analysis (SCBA)                               |
| 7. Charity Assessment Method of Performance (CHAMP)    | 21. Social Cost-Effectiveness Analysis (SCEA)                          |
| 8. Foundation Investment Bubble Chart                  | 22. Social e-valuator  |
| 9. Hewlett Foundation Expected Return                  | 23. Social Footprint   |
| 10. Local Economic Multiplier (LEM)                    | 24. Social Impact Assessment (SIA)                                     |
| 11. Measuring Impact Framework (MIF)                   | 25. Social return Assessment (SRA)                                     |
| 12. Millennium Development Goal scan (MDG-scan)        | 26. Social return on Investment (SROI)                                 |
| 13. Measuring Impacts Toolkit                          | 27. Socio-Economic Assessment Toolbox (SEAT)                           |
| 14. Ongoing Assessment of Social Impacts (OASIS)       | 28. Stakeholder Value Added (SVA)                                      |
|  | 29. Toolbox for Analysing Sustainable Ventures in Developing Countries |
|  | 30. Wellventure Monitor  |
|  | 31. IRIS+  |

SRA, ACAFI, TBL, MIF, and BACO are more prominent in for-profit companies. Some methods can be adapted in other organisations that they are initially intended for, as can be seen with the SROI. It was initially developed for NPOs but for-profit companies are benefitting from this method too. Meanwhile, according to Gonul and Senyuva (2020), some of the most used SIM methods in social enterprises that are not in the table above are Cost-Benefit Analysis or lately called Social Cost Benefit Analysis, Social Accounting and Basic Efficiency Resource (BER) Analysis. Due to the nature of subjectivity of SIM depending on the mission of each organisation, the methods can be used interchangeably.

While NPOs do not like to compete against each other for funds, they must put in efforts to communicate the impact and value derived from their activities to remain sustainable in receiving funds from donors (Arvidson and Lyon 2014). As such, NPOs must be aware of how their donors assess their social value, including the non-financial benefits to wellbeing across multiple stakeholders (Cunningham and Ricks 2004). Besides donors, the pressure from authorities becomes another factor why there is a growing interest amongst NPOs to measure their social impact in order to receive recognition of being accountable to all parties.

### 3 Research Methodology

This study undertakes an integrative or critical review of the literature to obtain secondary data. In general, a literature review allows the researchers to build a solid

foundation for the study by exploring the concept of accountability, performance measurement and SIM in NPOs. Drawing from the experiences of NPOs gathered from literature in NPO sector, this paper's objective is to explore and provide a thorough and critical review of accountability and PMS in waqf organisations to identify areas in the current practice that need further enhancement. This includes the proposal of SIM as a means to measure performance to enhance the accountability of the organisations towards its stakeholders. For newly emerging topics such as SIM in waqf organisations, the purpose of such integrative review is not to cover all articles ever published on the topic but rather to gain insights and combine perspectives from various fields to create initial or preliminary conceptualisations and theoretical models (Snyder 2019).

## 4 Findings and Discussions

### 4.1 *Accountability and Performance Measurement in Waqf Organisations: Lessons from NPOs*

The idea of conventional accountability described in the literature review aligns with Islam. Accountability in Islam continues to enhance what has already been promoted by conventional accountability. In addition to the worldly and material status often focused on by the West, Islamic accountability comes with a realisation that everyone will be answerable to Allah in the Hereafter (Masruki and Shafrii 2013). Islam believes that accountability stems from the concept of amanah (trust) and khalifah (vicegerent). A man's primary accountability should be to answer to Allah as narrated in the second chapter of the Quran, verse 284 which means: "To Allah belongs all that is in the heavens and on earth, whether you show what is in your minds or conceal it, Allah will call you to account for it", while a man's secondary accountability is towards other human beings based on the contract established between them Sulaiman et al. (2009). Expanding this concept to waqf organisations, the relationship between the waqif (donor) and the mutawalli (trustee) is ultimately built upon this concept of accountability in Islam, aimed at ensuring the intended impact of social services are responsibly and adequately made. The financial and non-financial resources given to the mutawalli to meet this goal is a form of trust that waqf management must uphold as a khalifah, which will be accounted for in the Hereafter. Furthermore, Kamarubahrina et al. (2019) is of the opinion that this expectation for transparency and accountability becomes more pertinent due to the trend in waqf management which has moved from land to cash waqf and even to digital money.

Since waqf's nature and primary purpose is similar to NPOs to benefit the society (Ihsan and Ayedh 2015; Ramli and Muhamed 2013), waqf organisations may adopt and apply similar concept and measurement of performance for NPOs. Due to limited literature on performance measurement in waqf, Noordin et al. (2017) had

drawn similarities between the waqf and TSOs specifically in terms of their fundamental vision, foundation principles, deliverables, end goals, growth as well as the development and challenges faced by both with regards to PMS.

Generally, prior studies had focused on measuring the performance of waqf organisations based on the adoption of quantitative methods such as financial accounting and ratios (Abdul Rahman et al. 1999; Ihsan and Ibrahim 2011; Shaikh et al. 2019; Siraj 2012; Sulaiman and Zakari 2015) and balanced scorecards embedded with shariah principles (Ramli et al. 2018). This is to ensure that all activities performed are Shariah-compliant and assessed based on the Shariah principles. However, more researchers have also begun to consider qualitative or non-financial elements in measuring performance. For example, besides looking at just financial perspective like financial ratios, Arshad and Zain (2017) also considered non-financial aspects in measuring the performance of waqf organisations in Malaysia like input, output and outcome. In another study, Arshad et al. (2018) proposed an additional perspective of the non-financial measurements by including relevant perspectives of network. The proposal was inspired by a study by Chongmyoung Lee and Nowell (2015) on PMS for NPOs who identified inputs, organisational capacity, outputs, outcomes, public value accomplishments and network/institutional legitimacy as the perspectives that can be adopted to measure and conceptualise the performance of NPOs. Noordin et al. (2017) also attempted to look at qualitative methods of PMS in waqf. In their study, they had 1) conceptually designed a contingency framework for assessing the performance of waqf institutions based on the elements of input, output and outcome, on four dimensions of Maqasid Shariah, efficiency, social effectiveness and, sustainability and growth; and 2) outlined guidelines for waqf organisations to design their own comprehensive PMS.

#### ***4.2 The Missing Link in the Current PMS of Waqf Organisations***

Despite the importance and expectations given to waqf organisations, they have not yet achieved their fullest potential in exerting their accountability to stakeholders (Arshad and Zain 2017; Yaacob 2006). According to Mujahid and Adawiah (2019), the unrealised potentials and lack of trust towards Islamic social finance (ISF) institutions, including those of waqf organisations, are due to the limited disclosure on how Islamic finance institutions measure and report their social impact and values.

One way to address this is for waqf organisations to exercise transparency to discharge accountability to the stakeholders through social impact measurement (SIM). Unfortunately, as discussed in Sect. 4.1 earlier, the performance of waqf organisations has been conventionally and predominantly assessed using quantitative methods. While the quantitative approach is essential, the performance measurement of waqf organisations should also focus on other qualitative measures, through

which emphasis is given on realising their social mission and thereafter, communicating the social value that the organisation creates in a clear and consistent manner. These qualitative approaches have also started to gain more attention in recent years. Disclosing appropriate information on the impact of waqf can be used as a means to garner support and increase confidence from the public to continue to invest in waqf (Ramli et al. 2018). Failure to do so may result in a significant reduction in waqf assets with an unwanted impact on the socio-economic development of the Ummah (Arshad et al. 2018).

The concept of perpetuity is an important element in waqf in order to be able to generate continuous income for the needy and solve socio-economic issues. A good plan and governance are indeed crucial to discharge accountability to various stakeholders including donors and beneficiaries (Ramli and Muhamed 2013). In Malaysia, the role of waqf has received remarkable attention from the government. This is demonstrated in several special allocations in the country's 9<sup>th</sup> to 12<sup>th</sup> Malaysia Plans, as well as in the establishment of Department of Awqaf, Zakat and Hajj under the Prime Minister's Office in 2004. The department's primary mission is to strengthen the institutions of Awqaf, Zakat and Hajj for socio-economic development through governance and service delivery system. However, despite the recognition given, Arshad and Haneef (2016) and Noordin et al. (2017) argue that waqf could still be under-recognised in the mainstream economy, and potentially underestimate its true potentials. The absence of a systematic method to measure, demonstrate and communicate its social impacts could be one of the possible reasons for this lack of recognition (Noordin et al. 2017). Not only that, waqf organisations are still not able to demonstrate whether or not they are achieving their fundamental purpose of existence (maqasid waqf) based on higher objectives of shariah (maqasid shariah). As such, waqf organisations are expected to exert transparency and accountability to stakeholders with regards to their performance in achieving the underlying objectives of waqf, which cover the overall *maslahah* (benefits) for the society. This includes the preservation of waqf assets, ie. ensuring the good condition of waqf properties (Ibrahim and Khan 2015); and safeguarding the perpetuity of waqf by ensuring the sustainability of economic activities, equitable distribution of wealth and contribution to the growth of civilisation (Al-Mubarak 2016).

Waqif have long been pressuring for a comprehensive performance measurement system for waqf from the *mutawalli*, or waqf managers and operators (Noordin et al. 2017). This is to ensure that they properly discharge their responsibility and accountability in managing the waqf assets to benefit the intended beneficiaries. The lack of a systematic tool has contributed to the inability to measure social impact of waqf as well as the incapability to analyse areas that need improvement. This call of action is also consistent with the growing realisation that there is a demand for better ways to account for the social, economic and environmental value that results from financial activities (J. Nicholls et al. 2009) including one for waqf institutions (Noordin et al. 2017). A SIM framework may prevent the risk of diverting these instruments from their original purpose and may provide a comprehensive measurement of financial and non-financial indicators.

Today, there is an increasing realisation for waqf as a potential tool to contribute to a just society. According to Sadeq (2002), waqf has the potential to eradicate poverty by not only sustaining non-profit generating activities in social aspects such as health and education, but also increasing access to physical facilities, resources and employment. According to Ebrahim (2003), the notion of accountability is inseparably intertwined with the notion that accounting should supply a range of information to satisfy user needs. This information shall not be limited to only financial information, but also non-financial.

### 4.3 The Need for Social Impact Measurement (SIM) in Waqf Organisations

As mentioned in Sect. 2.3, SIM helps to identify the social impacts as a consequence of the activities by the organisation (Epstein and Yuthas 2014). Waqf organisations have been known to measure the collections and spendings, ie. input and output, but the actual impact remains unknown. Based on the authors' critical analysis of the literature, no studies on SIM in waqf organisations have been done so far and therefore it is imperative for it to be introduced and discussed now. There are many reasons for social impact to be measured by organisations. According to Epstein and Yuthas (2014), measurement of impact allow for the following (Fig. 2):

**Measure for Learning.** The measurement allows for organisations to understand their performance level and validate whether or not their assumptions of certain activities and strategies lead to the desired results. According to Mujahid and Adawiah (2019), the fundamental reason of existence and purpose of Islamic finance is to create sustainable social impact that provides betterment for the whole universe (rahmatan lil 'alāmīn). The authors argue that the 'formalist conundrum' of Islamic finance has restricted the role of Islamic financial institution (IFI) practices to focus on Shariah-compliance, whilst neglecting its social value and purpose. Therefore, they must measure their performance and test the assumptions of whether or not

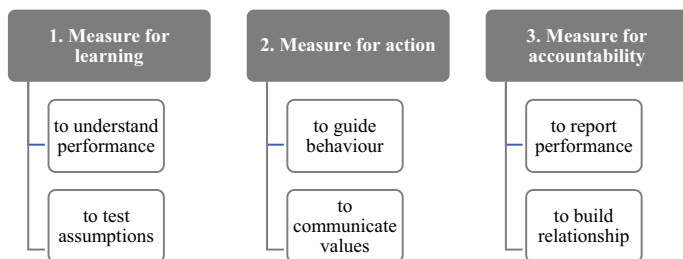


Fig. 2 Reasons for impact measurement Source Epstein and Yuthas (2014)

they are fulfilling their fundamental values to confirm if their actions have created positive social impact.

**Measure for Action.** Once the above is understood, the organisation can guide their actions and decide on necessary changes or interventions to improve the impact. Waqf organisations will have to be clear in describing the constructs and what they represent, thus translating the underlying maqasid shariah into actionable and measurable results. This clarity will help them understand what is being measured and decide which metrics to use. Thereafter, organisations may report their impact internally, which helps them communicate what is valued within the organisation and align priorities of the organisation.

**Measure for Accountability.** Finally, SIM allows for an important measure of accountability, which is the main focus of this paper. Stakeholders, either as a funder or beneficiary, are interested in the impact made by the organisations. SIM verifies the impact achievement and provides stakeholders with an opportunity to assess their funding or investments based on their satisfaction. Reporting impact can also increase the trust of stakeholders in waqf organisations, leading to an enhanced relationship and collaboration between them in the future. The more values they could see from the impact reporting, the more motivated they will be to participate in the funding of the organisations. Arshad and Zain (2017) also agree that the impact measurement will assist waqf organisations to discharge their accountability to the relevant stakeholders. The results of the measurement will demonstrate to stakeholders the success or failure of organisations in achieving their intended goals (Helmig et al. 2014). Furthermore, the impact measurement will also display the effectiveness and efficiency of relevant administrators in utilising the appropriated resources (Arshad et al. 2018).

Finally, the introduction of SIM in waqf organisations is timely now more than ever due to the need to measure and verify their social impact to the society as part of fulfilling its fundamental objectives. As stated by Mujahid and Adawiah (2019), SIM is a great tool to test whether ISF organisations have contributed positively towards society and to verify whether they are fulfilling the fundamental reason for their existence. The traditional unidimensional yardstick which focuses only on financial measures is no longer sufficient. SIM will assist waqf organisations to identify where they stand, where they want to be (their goals), and how to get there. In addition, SIM will produce strategic assets for institutions by collecting relevant data (Reynolds et al. 2018) and help to set informed benchmarks for further developments (Arshad et al. 2018).

## 5 Conclusion

Despite the growing demand for a proper accountability on performance of waqf organisations by different types of users, it is found that the current practice has not

been standardised and does not cover its entire aspects of performance as a religious as well as a voluntary organisation. Therefore, this paper aims to draw lessons from the concept of accountability and the adoption of performance measurement of NPOs that waqf organisations can learn from. This study also goes through a thorough and critical review of the literature on performance measurement of waqf institutions in order to identify areas in the current practice that need to further enhancement in the area of accountability. It is found that relying solely on financial reporting and accounting ratios is not enough to exert accountability to its stakeholders, forcing NPOs and waqf organisations to look deeper into the quality of their services and its impacts on society beyond just financial performance. Finally, an emphasis of introducing SIM in waqf organisations is made to enhance the accountability of the organisations towards its stakeholders.

Various analysis tools for assessing social performance and impact have been explored and developed in the academic world. Still, little effort has been put to measure social impact in waqf organisations. While this paper may be a good start for more researchers to realise the need for SIM, it is only the beginning to many more possible research areas. This paper is done through a critical review of existing literature with no provision of empirical evidences. Thus, considering the idea put forth by Epstein and Yuthas (2014) as a basis, future studies may want to explore how SIM can be designed through a viable impact measurement framework and roadmap by identifying their social and environmental objectives to relevant stakeholders, setting performance metrics and targets related to these objectives, monitoring and managing the performance against the targets set and reporting the performance to relevant stakeholders. Future studies could also include the comprehensive design of SIM framework to include key information from multiple sources including interviews with waqf operators especially to explore their current social impact measurement (if any), identify key impacts and metrics and challenges of adoption of SIM in waqf organisations.

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# Proposing a Waqf Based Ijarah Smart Sukuk Model for Development of Waqf Properties



Mohammad Bilal Khan , Ibadurrehman Patel ,  
Shaiq Ahmad Ghafoorzai , Damkar Mohammad Shehbaz ,  
Rusni Hassan , and Jawwad Ali

**Abstract** This paper focuses on presenting a working model by combining the concepts of Waqf and smart Sukuk that works under the contract of Ijarah. Therefore, it can be referred to as a waqf based Ijarah Smart Sukuk model. In a study conducted by Che Zuina Ismail (2015), it is found that due to several reasons such as bureaucracy and lack of transparency in waqf administration, Waqf has lost much of its dynamism. Due to these reasons and several others, many waqf properties are either lying idle or in a dilapidated condition, which has led to Awqaf's effectiveness and role being questioned. There is a need to broadly advertise the significant role played by Awqaf as an instrument of social welfare. Hence, this model is suggested for the development of waqf properties and to revive the role of Waqf in society's social well-being. By using the qualitative method, this paper also highlights the issues or challenges involved in the practical application of the smart Sukuk or Ijarah contract, including possible Shari'ah issues. The paper's policy implication suggests that the states adopt this technologically advanced and Shari'ah compliant working model to target the development-related issues of waqf properties. This paper will also offer the existing and upcoming professionals in Islamic finance a broader perspective about smart Sukuk and hopefully encourages them to develop a favourable framework for smart Sukuk and other smart contracts, which is currently lacking.

**Keywords** Smart Sukuk · Shari'ah · Challenges · Advantages and disadvantages · Waqf · Ijarah

## 1 Introduction

### 1.1 Background of Sukuk

The Arabic word Sukuk means “certification” or “pay-out order” and is the plural of the word sakk. Documents confirm the use of the word “sakk” in early Islamic caliphates, which were used as papers representing financial obligations derived from

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M. B. Khan · I. Patel · S. A. Ghafoorzai · D. M. Shehbaz · R. Hassan (✉) · J. Ali  
IIUM, Institute of Islamic Banking and Finance Malaysia, Kuala Lumpur, Malaysia  
e-mail: [bilalasafkhan@gmail.com](mailto:bilalasafkhan@gmail.com)

trade and other commercial activities by Muslim societies of the classical Islamic period (Khan 2003). Such practices were practiced in accordance with Holy Qur'an "When you deal with each other, in transactions involving future obligations in a fixed period, reduce them to writing...It is more just in the sight of God, more suitable as evidence and more convenient to prevent doubts among yourselves" (Al-Quran, 2:282).

Nowadays, Sukuk is classified as Islamic capital markets instruments. In Islamic finance today, Sukuk means Islamic stocks with quite distinctive characteristics. In February 1988, during the fourth session of the Council of the Islamic Fiqh Academy, one of the very first definitions were issued of the modern Sukuk. The Council defined Sukuk as "Any combination of assets (or usufruct) can be represented by written financial instruments that can be sold at a market price as long as the composition of the asset groups represented by Sukuk consists of a majority of the tangible assets" (Academy 1988). It is possibly the first definition of Sukuk today.

In 1990, Shell MDS issued one of the first Sukuk in Malaysia shortly after this description. After this issuance, until the beginning of the twenty-first century, other Sukuk emitters had no other successful issuances. Several institutions began to issue Sukuk in 2000, from which the Sukuk market rose (Dusuki 2009). In terms of Shari'ah issues and standardization, the exponential growth of the market demanded certainty. Hence, the Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI) issued its Shari'ah Standard on 'Investment Sukuk' in May 2003, and defined it as: "Investment Sukuk are certificates of equal value, representing undivided shares owning tangible assets, usufruct, and services or (in possession of) the assets of particular projects or special investment activity, but this applies once the value of the Sukuk has been received, the subscription has closed, and the funds received have been put into use for which the Sukuk have been issued" (AAOIFI 2008).

There are various different Sukuk forms based on the Islamic contracts already in existence: Murabaha, Mudarabah, Ijarah, Musharakah, Wakalah, and Salam. Depending on Islamic financial institutions' development, other hybrid and complex systems can be found in the Sukuk market. The market has witnessed many Sukuk launches in different forms and frameworks over the first decade of the twenty-first century. In 2007, the Sukuk market peaked in terms of issuance (Radzi 2018).

## ***1.2 The General Process of Sukuk Issuance is as Follows***

- Creation of an SPV to represent the investors.
- Sukuk proceeds against the issuance of the certificates and putting them into circulation.
- Secure the cash-flow through the contract period from the issuer to the investor and principal payment at the maturity.
- The asset is repurchased as per agreement by the originator after the maturity of the Sukuk certificate (Fig. 1).

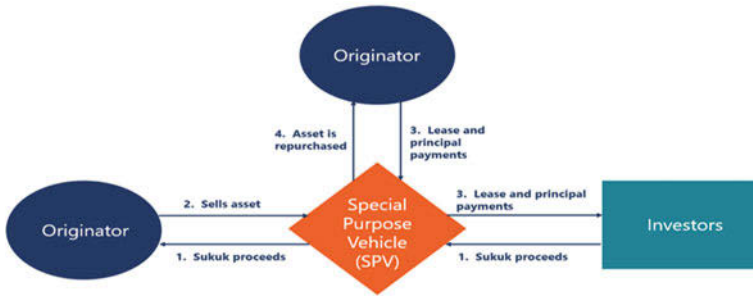


Fig. 1 Sukuk issuance process Source (Inc. 2021)

### 1.3 The Key Parties Involved in the Issuance of Sukuk

- The originator who is the organization that wants to collect funds,
- The Sukuk Issuer, to be a current or a newly combined vehicle of a special purpose (SPV).
- The lead Arranger/Manager who is the party that organizes/manages the whole cycle of Sukuk (usually originator itself).
- The Trustee (usually SPV) is a designated party to serve and supervise the Sukuk ‘holders’ rights from the start of the Sukuk issuance arrangements until SPV has wholly redeemed the Sukuk; and
- The Sukuk holders are investors planning to invest in the project and keep the Sukuk Certificates as evidence of their Sukuk investment (Fig. 2).

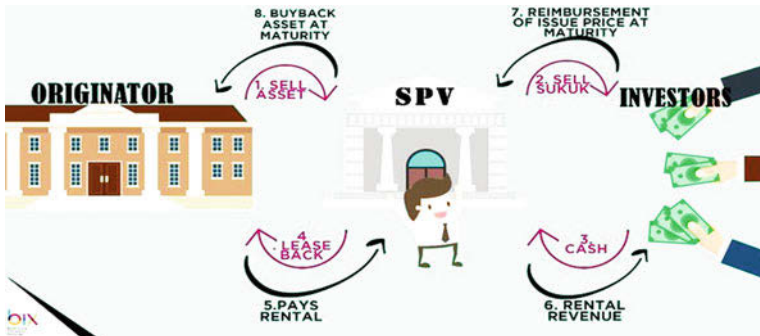


Fig. 2 Parties involved in Ijarah Sukuk Source (bixMalaysia 2019)

## 1.4 The Concept of Waqf

*Waqf* is an Arabic origin whose meaning is to stop or suspend or hold. In Islamic law, it means creating a *waqf* of a specific property in the way of Allah (SWT) for good objectives (Saad et al. 2017). Significantly, Islam strongly recommends socio-economic well-being and welfare-friendly practices such as *sadaqah* and *Zakah*. *Waqf* is another such Islamic model that the main objective is to eliminate the deprivation from society by establishing education centers, healthcare, etc. while enhancing access to tangible resources, amenities, and employment (Ali 2019).

Though *Waqf* is not explicitly mentioned in the Quran, there are meanings in its favour and can be utilized in several ways. Allah says: “Righteousness is not that you turn your faces toward the east or the west, but righteousness is one who believes in Allah, the Last Day, the angels, the Book, and the prophets and gives wealth, despite the love for it, to relatives, orphans, the needy, the traveler, those who ask, and for freeing slaves; establishes prayer and gives Zakat ...” (Al-Quran, 02:177).

The Prophet (PBUH) said: “When the son of Adam dies, his deeds come to an end except three...Sadaqah Jariyyah (Al-Tirmidhi 1975). According to Khatib al-Shurbuni, *Waqf* is one type of *Sadaqah Jariyyah*. Thus, *Waqf*’s genesis is continuing charity, and its ultimate end is success in the life Hereafter (Al-Shurbīni 1994).

Historically, the origin of *Waqf* is traced to the era of the Prophet as it is stated in the Prophet (PBUH) narrations that Umar (RA) had acquired a piece of land in (the canton of) Khaibar and proceeded to the Prophet (PBUH) and sought his counsel to make the most pious use of it. After which, the Prophet (PBUH) declared, “Tie up the property (asl-corpus) and devote the usufruct to human beings that it is not to be sold or made the subject of gift or inheritance; devote its produce to your children, your kindred and the poor in the way of God” (Al-Tirmidhi 1975). Following this rule, Umar (RA) dedicated the property in question as *Waqf*, which continued to exist for several centuries until the land became waste. After the Prophetic era, this chain continued by Muslims to endow their properties, gardens, houses, and other things and participated in the construction of Masjid. The history of Islam is fulfilled with precious examples of *Awqaf*. In every era, good people stressed the formation of *Waqf* and carried significant work in its extension and promotion (Aziz et al. 2018). However, it has seen many ups and downs during the development of contemporary civilization. For example, in India, *Waqf* assets had progressed substantially and speedily, particularly after the Mughals’ emergence. This management of socio-economic welfare by the Mughal rulers helped build mosques, religious institutions, etc., (Abdullah Nadwi 2012).

Nevertheless, when the British came into power in the Indian subcontinent, this institution collapsed along with the administration of other established Islamic Institutions (Cizacka 2000). According to the Aziz and Ali (2018), Sachar Committee Report (2006) revealed that the total value of the *Waqf* properties in India in 2006 was estimated to number at around 500,000 assets, encompassing a total area of 600,000 acres, with a market value of more than 60 billion Indian rupees. According to the report, if these properties were better utilized, they could generate, at a minimum,

a return of ten percent, which would amount to approximately 1200 billion Indian rupees per annum.

In Malaysia, at present, according to the Department of Waqf, Zakat, and Hajj (JAWHAR) the objective of which is to create a waqf institution that is neat, orderly, uniform, transparent and effective in accordance with the tenets of Shari'ah that can help improve the socio-economic status of the Muslim community in Malaysia, there are over 8,861.15 hectares of *Waqf* land. A total of 4,543.27 hectares of the land have been categorized as '*Wakaf Khusus*' or special *Waqf* (the kind of *Waqf* precisely declared for specific purposes or special beneficiaries), while 4317.88 hectares have been categorized as '*Wakaf Aam*' or general *Waqf* (Ismail et al. 2015). Like India, there have been many hurdles to develop the *Waqf* properties across the countries. According to Aziz and Ali (2018), *Waqf*-related issues are heard in the Civil High Court or Court of Appeal that may create obstacles in hearing the Shari'ah-related cases because judges are incompetent in Shari'ah law, as they were qualified in the secular law. Another issue which is an obstacle for the development of *Waqf* institution in the country is to fall under taxable properties like private land (Rani et al. 2010).

## 2 Literature Review

### 2.1 Smart Sukuk

Smart Sukuk is one of the latest and most essential frameworks for future Sukuk issuances. Smart Sukuk appears to be the future of Islamic fundraising to develop infrastructure and industry in the era of advancements in crowdfunding and financial technology.

Sukuk markets are the most profitable in Islamic finance. However, it is also clear that powerful entities and public agencies typically issue Sukuk, and therefore they become costly in terms of issuances. The smart Sukuk framework aims to use blockchain technology to improve productivity, transparency, cost reduction and enable SMEs, social impact projects, groups, and associations to develop their Sukuk using new technology. The Smart Sukuk's key component is to standardize and automate the accounting, legal and overhead payment of conventional Sukuk deals, all of which are fully supported in the issuing country by a licensed legal entity (Sa'ad 2018). "Smart Sukuk in Islamic economy is tokenization by collecting funds from investors in exchange for Sukuk Tokens representing an ownership portion of the Sukuk investment. The funds are automatically distributed back to the Sukuk Token holders via the blockchain according to the rules of the smart contract in Islamic Economics-without the need of conventional banks or intermediaries". Therefore, any institution that needs funds can issue Smart Sukuk that collects money from investors in exchange for Smart Sukuk Tokens that represent a portion of the Sukuk. When the institution pays, the funds are automatically distributed



back via Blockchain to Smart Sukuk Token owners under the smart contract's provisions—without the need for banking institutions or third parties. In-depth research and analysis show that Sukuk's behaviour is entirely consistent in contrast with the smart contract theory. The only difference is automation; smart contracts are automatic, whereas Sukuk is manual (Maghdeed 2019).

The world's first innovation in smart Sukuk introduced by blossom finance, Blossom's Smart Sukuk uses "smart contracts" from Ethereum, which is basically a blockchain computer program. All records, assignments, calculations, and payments relating to the Sukuk are managed through a smart contract, leaving behind a permanent audit trail at any time (Blossom 2018). A smart contract encrypts business rules directly into the underlying payment currency itself—the blockchain itself complies with the contract rules concerning payments and transfer of ownership (Blossom 2018).

## 2.2 *Ijarah Sukuk*

Ijarah (Leasing) is a *manfa'ah* (benefit) type of contract, where a lessor (owner) leases out an asset or equipment to its client at an agreed rental fee and pre-determined lease period upon the 'aqad (contract). The ownership of the leased equipment remains in the hands of the lessor (Rahim 2013). According to (Sekuriti 2006) Ijarah or rental principal is a benefits contract between the rental owner and the lessor (asset owner) when the rental rate and rental duration are stated in the contract.

Sukuk al-Ijarah is a Sukuk structured with the rental concept alongside a right to purchase the rented property on the final lease date. This Sukuk is issued by applying the Ijarah contract between the issuer and the investor of Sukuk. The implementation of Sukuk, however, includes the initial sale and purchase contract. In this regard, Sukuk al-Ijarah covers the sale and purchase agreement and the entire al-Ijarah contract. With this principle, Sukuk represents each unit of Sukuk with a physical asset. Therefore, the loaner can sell it domestically or abroad on the secondary market without any restrictions (Ahmad 2009).

Ijarah Sukuk can be negotiated fully and traded on secondary markets. Ijarah Sukuk provides a high degree of flexibility in terms of its performance and marketability (Rohmatunnisa 2008). Such Sukuk can be issued by the central government, municipalities, Waqf, or any other asset consumer, either private or public. In addition, financial intermediaries or users of leased assets may issue them directly (Kahf 1997).

Sukuk Ijarah is one of many Sukuk that most contribute to economic well-being. Sukuk Ijarah is most widely accepted by Islamic scholars and most widely used in financing the projects (Mohd Yahya Mohd Hussin 2012). In Malaysia, Sukuk Ijarah is one of the world's most popular Sukuk structures since its first introduction in 2001 (Yumanita 2007). It became popular in Muslim countries that developed Sukuk, especially Sukuk Ijarah, but other countries that realized that Sukuk is becoming important also adopted it, such as China, Japan, Thailand, and Germany. Afterward,

the examples of Sukuk Ijarah on a global level are Government of Bahrain Sukuk Ijarah, Segari Energy Venture Sukuk, Qatar Sukuk, Tabreed Global Ijarah Sukuk, Pakistan Global Sukuk, Saxony-Anhalt Sukuk, Government of ‘Malaysia’s Global Sovereign Sukuk, and others (Faiza Husnayani Nahar 2018).

Ijarah Sukuk is one of the best ways of improving the private sector economy; the fundamental explanation is that the real beneficiaries of Sukuk issuance in Ijarah Sukuk are the holders of the Sukuk assets (investors) who are the owners of ‘the Sukuk’s underlying asset. The Ijarah Sukuk also provides a mechanism to promote and upgrade innovation in the Islamic capital markets (ICMs), especially in the Sukuk market. Sukuk is more preferred than conventional bonds because it is issued in a single Islamic economic structure based on investment in capital and real economic output. It has helped to improve and maintain ICMs in today’s financial world (Sa’ada 2019).

### ***2.3 Advantages of Smart Sukuk***

Smart Sukuk, as it has been highlighted above, are Islamic bonds that are digitalized in order for the Islamic financial system to keep up with the pace of the increasingly technological development and taking advantages/opportunities these innovations come up with instead of taking any chance of being disrupted. The Sukuk, which is transacted via blockchain technology, apparently brings many benefits to Islamic finance such as cost efficiency, time efficiency, transparency, security etc., which are very helpful in preventing gharar and speculation in Islamic finance.

Smart Sukuk tokens can be designed to support an industry-standard protocol that may help smart Sukuk be traded seamlessly at the international level and lower operational risk. To give an example of that is the adoption of the ERC20 standard token, which moreover provides the issuers and investors with access to the global market and harmonizes the challenges of various public cryptocurrency exchanges. “We are now using an Ethereum smart contract to collect funds, issue ownership certificates to investors (using the ERC20 token standard), remit money from overseas into Indonesia, convert forex to rupiah, manage payment back to the investors, disburse payments appropriately based on relative ownership stake, and pay Blossom’s share of profits based on the agreement, plus secondary market tradability. All of this happens automatically using the blockchain rather than manual processes and human intervention,” explained Martin (Fintech 2018).

Issuing the smart Sukuk does not require intermediaries since technology is decentralized in nature. This may lower the cost and also make small lot sizes that are more financially viable. Small lot sizes can also increase the liquidity of the Sukuk market. The regular Sukuk market is not much liquid because everyone hoards the good papers against the underlying assets. The smart Sukuk introduces the smaller-ticket papers representing actual ownership of the underlying asset and creates a genuinely more liquid instrument. “The technology has become much more mature,

there is great liquidity in the market, and it is good timing for investors,” Martin shared (Fintech 2018).

On the other hand, the ability to issue the small lot size tokens to the public in the smart Sukuk market, widening the opportunity to the SME and non-bank individuals who have no access to the capital market to be the part of the global Sukuk market by not only buying the tokens but also may raise fund to finance their projects by issuing their own.

The blockchain and smart contracts used for transacting the smart Sukuk make all procedures being transparent. Since the blockchain enhances transparency, the trust among the issuers and investors increases, and of course, this may eliminate any chance of fraud and speculation in Sukuk transactions. A decentralized, immutable record also ensures all stakeholders have equal access to information and helps in building trust (Angwei Law 2017). Speaking about eliminating fraud and other speculations, the blockchain technology also uses the cryptosystem, which is considered highly secured. Each transaction is signed with a private key and then can be further verified with a public key. If the of the transaction changes, the signature becomes invalid. As a result, the block is ignored and will not make it to the chain (Kot 2019).

## ***2.4 Advantages of Smart Sukuk***

The benefits of the smart Sukuk, among those explained above, make the smart Sukuk more attractive and increasing interest to various stakeholders. However, there are some challenges in respect of Operational/technology-based that need to be highlighted.

### **Feasibility, Cyber Security Threat and Government Regulations**

The adoption of the blockchain technology and uses of the cryptocurrency associated with its limitations/challenges, in one way or another, may threaten the feasibility and development of the smart Sukuk. Because smart Sukuk works on the Blockchain platform, which needs a computer and an internet connection apart from the requirement that the person using it should also have the knowledge of using not only computers but also blockchain, presents a massive constraint in its wider acceptance across the globe. Still, many countries and a considerable population worldwide do not know how to use a computer or have no internet connection, or both. Moreover, even if people have computers and the internet, there is still a significant chunk of the population that is unfamiliar with the blockchain. Besides, the problem like the Local Regulations regarding Blockchain and cryptocurrency makes it difficult for the smart Sukuk to be available to the masses (Swanson 2016).

Safety and security are other challenges of using the blockchain and cryptocurrency. The public still has the trust issue on the online systems due to the scammers and hackers. There have been instances where cryptocurrency, such as Bitcoin, has been hacked, and millions of dollars' worth of Bitcoins have been withdrawn by the hackers. Because no central authority or any government is backing the Blockchain

transactions, its users have no recourse in case of a hack or any other mishap. Apart from this, every Blockchain transaction consisting of a monetary amount is deducted or added to a digital wallet, which requires a unique passcode to be accessed. If this passcode is forgotten or misplaced by the user, there is no way of recovering the money contained in the digital wallet (Swanson 2016).

Lastly, there is the issue of Government Interference with digital money, which may also hinder the smart Sukuk development. Several governments do not feel comfortable with a currency that a sovereign country's institutions do not back. "Some countries and central banks issued official warnings against Bitcoin usage during its early years, including Russia, China, and the European Union". Even though some countries such as Japan and South Korea now allow its citizens to use cryptocurrency and invest in it, the risk of it not being backed and monitored by any central authority is still present (Elasrag 6 March 2019).

## 2.5 *Shari'ah Issues in Ijarah Sukuk and Smart Sukuk*

### **Issues in Ijarah Sukuk**

Ijarah Sukuk has almost two decades of history in the Islamic capital market. It is introduced to the Islamic capital market in 2001 for the first time and got widely accepted among scholars and the Muslim and non-Muslim countries such as China, Japan, and Germany (Yahya 2012). Despite its acceptance, some Shari'ah issues have been raised by Islamic scholars. Here the paper enlists some of the prominent issues regarding Ijarah Sukuk.

**1. Sale and lease-back structure:** There are disputes among the Islamic scholars about Ijarah Sukuk's structure. Some argue that it is the modified of Bay'-al-wafa or Bay'-al-Istiglal or Bay'-al-I'nah which these types of sale contracts been discussed widely by Islamic scholars (Al-Amine 2001). Bay'-al-Wafa is a sale of an asset with the condition that if the seller pays back the price of the asset, the buyer shall return the asset to the seller. Or in other words, the seller honestly does not want to sell its asset; instead, he intends to attain the money. This type of sale is allowed to a small group of scholars, while many scholars rejected it. By renting the asset to whom can sell it cash, give the same result as such renting by Ijarah Muntahiya Bi al-Tamleek (lease contract that ends with ownership). Hence these contracts have similar characteristics. Likewise, Bay'-al-Istiglal, which is selling the assets with ceratin pre-agreed conditions, where the seller leases out this asset and once, he can pay back the price, he will get his asset back, and this is the end of sale and lease-back contract. Bay'-al-i'nah is a sale transaction where two contracts of sale initiate at once, one with spot price and the other with the deferred higher price. Hence, there can be similarities between the mentioned three sale contracts and Sukuk Ijarah, in which the aforementioned sale contracts have been considered a legal trick to riba.

**2. Pricing of Sukuk:** Islamic law scholars and Muslim economists are yet to develop an alternative to the interest rate as an indicator of profitability. That is why, nowadays, London Inter-Bank Offered Rate (LIBOR) is used as a benchmark in the

practice of IFI's. Meanwhile, even the use of LIBOR as a benchmark is not prohibited, but it is not correct to rely on it to determine returns. Sukuk holders are supposed to receive their return from the rent of the underlying asset of Ijarah Sukuk. However, in practice, this return is not at all genuinely reflecting the rental of the underlying asset; instead, it is more to the prevailing rate of interest rate (Faiza Husnayani Nahar et al. 2018).

### Issues in Smart Sukuk

1. **Issue of Khiyar:** Despite the advantages of smart Sukuk discussed above, there are some issues that scholars have raised in this regard; one of them is the issue of Option or Khiyar. In smart Sukuk, once the contract has commenced, there is no option for the contract's cancellation or amendment. This issue happens when the contract behind is Mudharabah. In the Mudharabah contract, each party keeps the right to terminate the agreement except if there is any other condition at the inception of the contract, such as the contract made for a specific period of time (Sa'ad 2018).
2. **Use of Cryptocurrency:** The scholars and specialists in Shari'ah (Islamic Law) generally have different views. The first group of scholars believes that Shari'ah prohibits using cryptocurrencies. The other group believes that the concept of cryptocurrency is halal.

**First View:** Cryptocurrency is Haram. Many scholars and fatwas support this view, which is summarized below. Egypt's Grand Mufti, Shaykh Shawki Allam, said cryptocurrency is haram. Among other explanations, the Shaykh cites the following in his statement:

- It is easy to use cryptocurrency for illegal activities; therefore, the transaction's primary purpose is hidden from the governments, and the authorities are concerned in case transactions are made for non-Shari'ah and unlawful purposes.
- It can only be used over the internet and is intangible.
- Money laundering and theft are allowed.
- It does not have a central body that monitors its system but destroys the power over central banks and governments' monetary policy.

**Second View:** Cryptocurrency is Permissible in Principle. Some scholars believe that mainly cryptocurrency is permissible. It is a common legal principle that lawyers have explained: الأصل في المعاملات الإباحة, it means that the initial rule is permissibility in financial and business transactions. In other words, it is all permissible unless we find it directly contrary to the principles of Shari'ah. According to this principle, mainly cryptocurrency is allowed. It can also be viewed as money if it has the following attributes.

1) Considered among the people as a valuable thing, 2) Accepted by all or a substantial group of people as a medium of exchange, 3) It is a cost factor, 4) It serves as an accounting unit. Any cryptocurrency that meets these criteria (for example, Bitcoin) is therefore suitable as property (Abu-Bakar 2018).

**Third View:** Cryptocurrency can be Permissible. the new cryptocurrency phenomena cannot be regarded as halal unconditionally due to a few of their technical problems, operating mechanisms, and legal status, which do not comply with the principles and ethics of Shari'ah. Examples include the gharar element in return, the fund's movement without a regulatory standard, investor (users') insecurity, and no risk plan. Therefore, in order to benefit from halal cryptocurrency, one should be established according to the Maqasid al-Shari'ah, and that is a standard Shari'ah regulatory framework, Shari'ah guidelines, and policies, a Shari'ah supervisory body for monitoring every operation within the Maqasid al-Shari'ah avoiding all gharar component in any aspect of establishment or function and it should be an asset-backed with useful existence, tools, and principles and also justified by Shari'ah (Alabdulraheem and Abdul Qayom 2019).

### 3 Findings and Discussion

#### 3.1 *Application of Waqf Based Smart Sukuk Through Ijarah Contract*

Waqf body can either be an Islamic charitable foundation or a government waqf board that has properties or undeveloped land under its command. The goal of the Waqf based smart Sukuk is to re-shape the obsolete building in a selected site or to develop an undeveloped/barren land. The property or land shall be given for 20–30 years on a long lease to a developer who will approach a Special Purpose Vehicle (SPV) to mobilize funds to develop the land into commercial shops and residential apartments based on the principle of the BOT (Build, Operate and Transfer) contract. The SPV will appoint a property developer or a company to develop and manage the property. When developed, rent received will be periodically distributed between investors through SPV. The Waqf Foundation will take control of the developed property and continue to receive the rent upon maturity of the contract (Fig. 3).

#### **The Working of the Model is Explained as Follows**

1. Waqf administrator/manager signs an Ijarah contract with the real estate development company (with the build, operate and transfer or BOT concept), which receives the waqf land-based on the long-term rental contract and develops it into a modern business rental property and manages it.
2. After receiving property from the Waqf administration, the Property Development company will establish SPV to issue Sukuk, and SPV offers a subscription to this property under the Ijarah contract through the blockchain platform.
3. Having agreed on all the terms and conditions of waqf-based Ijarah smart Sukuk, Investors will subscribe to the Sukuk and pay the amount through blockchain

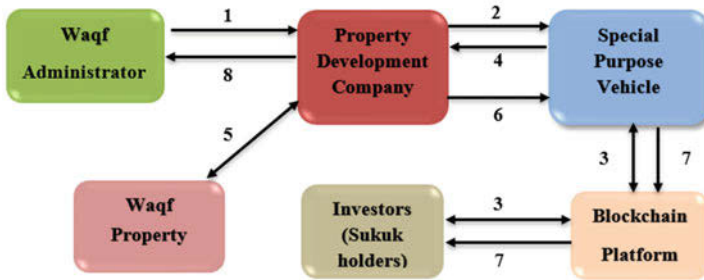


Fig. 3 Flow of the proposed model *Source* Khan et al. (2021)

application; Blockchain will create separate blocks for each subscription that will record their transactions.

4. SPV provides the fund to the property development company for developing the waqf property.
5. The SPV assigns the property development company to administer the Waqf properties/assets. The agreed lessees (customers) of the properties enter into forward leasing with the Property Development Company.
6. The Property Development Company collects the agreed lease amount and dispenses it to SPV.
7. Then SPV distributes the periodic amount to Sukuk holders through blockchain (their respective blocks). And each transaction will keep the record as proof of work.
8. After the agreed period, the newly developed property is handed over to the Waqf with tenants (*Source* Khan et al. 2021).

### 3.2 Advantages of the Model

The model is presented to counter the development-related issues of waqf properties so that the real essence of Waqf, which is to ensure humanity's social well-being, is preserved. Apart from ensuring the social welfare of humankind, there are numerous other benefits of the implication of this model. One such benefit is the creation of employment opportunities. As discussed earlier in the study, there are around 4317.88 hectares of 'Wakaf Aam' or general *Waqf*, and a major chunk of this is still unutilized (Ismail et al. 2015). Therefore, if the waqf administration decides to develop these lands as hospitals, schools or religious, educational institutions, or other facilities for the general public, it will not only facilitate them but also provide employment to numerous others.

Another benefit is an increase in the value of awqaf through its investment. As waqf property can be developed to function in many areas, therefore, its investment

in various fields is not only profitable for humanity but for the waqf administration as well (Khan et al. 2021).

It has been pointed out by (Siddiqi 1995) that it is the Prophet's tradition to finance an economy using Waqf, e.g., the Prophet (PBUH) had used fruits from orchards that Mukhayriq left to finance for artillery. Secondly, the Ottomans successfully incorporated Waqf in their financial system and catered to its public expenditures for centuries. Thirdly, Waqf had financed social needs and cultural associations for centuries in Islamic history, and some awqaf had even survived over ages.

Studies done by (Çizakça 1998) and (Mohd 2012) indicate that Waqf reduces public expenditures and costs to a country's social needs (Ambrose et al. 2015). This had brought Abdul et al. (2013) to conclude that Waqf, among other philanthropy tools in Islam, has the ability to create a welfare economy. Therefore, keeping in mind all the benefits, more emphasis needs to be given to develop the waqf properties and utilize them for the welfare of the ummah and the whole of humanity.

## 4 Conclusion and Recommendations

It can be concluded from the discussion above that the Ijarah contract is already a popular contract when it comes to issuing Sukuk. Similarly, it can be specifically used to issue smart Sukuks. When applied to develop waqf properties that are laying barren or unutilized or even under-utilized, it can prove beneficial for the Waqf and the Sukuk holders. Where on the one hand, the development and investment in waqf property raise the value and potential of Waqf, on the other hand, it gives a chance to the investors to get returns from halal investments or use the property in which they invested for a given time period, without the need to purchase it in order to be able to use the property. As far as the investment of waqf property is concerned, it is allowed from the perspective of Shariah because deduction or negligence of Awqaf is prohibited. However, the motive behind such investment should be the welfare of the society rather than profit-making. Nevertheless, when it comes to the dividend of investment being shared with the waqf institution, it is allowed, as long as this profit is used for the purpose for which Waqf is made, with strict shariah compliance (Ambrose et al. 2015).

As discussed in the paper earlier that awqaf in today's world have lost its dynamism and utility but, if the focus is shifted towards developing the properties that the waqf bodies already possess all over the world, instead of creating new awqaf, it will create much more development opportunities, not only for Waqf but also for Muslim ummah and for the states as well. Nonetheless, developing waqf property leads to achieving the social well-being of society. However, to overcome the issues discussed earlier, it is necessary to introduce new laws and regulations to solve them and make the contracts more compliant with Islamic law. For example, the Ijarah contract issues can be easily resolved by making minor tweaks in the contract structure and making sure the contract terms are clear to the parties involved before the contract is concluded. Hence, an authoritative organization such as the SAC of BNM could play a vital role



in alleviating these problems. Moreover, if the issues are weighed in comparison to the advantages, the advantages are much more in terms of the benefits achieved through the use of Waqf combined with a smart contract, such as the Ijarah smart Sukuk. Therefore, this study recommends adopting a technologically advanced and more transparent method of developing Waqf properties, such as integrating it with a smart contract. It will put the public's confidence back in the Waqf administration and ensure that such institutions' credibility remains intact as they are meant to promote brotherhood and social well-being instead of being a ruckus in the society.

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# The Practice of Islamic Bank in Zakat Distribution: The Case of Malaysia



Nurul 'Iffah M. A. Zaaba  and Rusni Hassan 

**Abstract** Islamic banks have been bombarded with the accusations being the same with its conventional sides. Consequently, the public are not convinced with the title 'Islamic' that Islamic banks have been carrying. Despite a growing literature on the reporting practices of Islamic banks, there is a need of research on the role of Islamic banks in zakat distribution. This descriptive, content analysis examined the annual reports and financial statements of Islamic banks to explore information that can be found in these documents. Documents from year 2018 until year 2020 was searched using their individual website and downloaded. Results indicated that Islamic banks do not disclose much information on zakat distribution, since it is considered as voluntary disclosure. Annual reports and financial statements are means of corporate communication to the public. Thus, disclosing such information is recommended.

**Keywords** Islamic banks · Zakat distribution · Annual reports · Financial statements

## 1 Introduction

Licensed Financial Institutions in Malaysia have several types: commercial banks, Islamic banks, international Islamic banks, investment banks and others (Bank Negara Malaysia website 2021a). The main difference between an Islamic bank and a conventional bank is the zakat element. Islamic banks collect and distribute zakat while conventional banks do not deal in zakat (Alam et al. 2017).

In Malaysia, Islamic banks have many functions, it is included distribution of their own zakat payment. This study emphasizes zakat distribution practices of Islamic banks. Zakat distribution methods that are suggested by Rahman (2012) are:

- 1) Payment directly to the asnaf or self-distribution,

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N. 'I. M. A. Zaaba · R. Hassan (✉)

IIUM Institute of Islamic Banking and Finance, International Islamic University Malaysia, Kuala Lumpur, Malaysia

e-mail: [hirusni@iium.edu.my](mailto:hirusni@iium.edu.my)

- 2) Payment made to the authority, or
- 3) Combination of former methods.

According to Badarulzaman et al. (2016), one of Islamic banks choose the third method where they pay half of the zakat amount to the zakat authority and the remaining will be distributed to the asnaf by themselves. By choosing the first and third method, Islamic banks act as zakat distributor (Jusoh and Ibrahim 2016). After paying a certain amount to zakat authorities, Islamic banks are titled for wakalah zakat which is a refund system where zakat payers in this case Islamic banks receive an assignation of authority to eligible beneficiaries based on a specific condition (Osmera et al. 2021). Hence, adding another method to the former categorization.

In this respect, Islamic banks are deemed accountable to various stakeholders including zakat beneficiaries (asnaf), government and community at large (Lewis 2001). Corporate institutions may communicate this kind of information using reports that are published online and easily accessed by the public (Parker 1982).

However, researchers pay very limited attention to the zakat distribution practiced by Islamic banks. They conducted more research on zakat institutions focusing on the efficiency and effectiveness of collection and distribution. This is due to zakat institutions being the main collector and distributor of zakat.

There are some research about corporate zakat distribution of Islamic banks which have become the reference for this research which cover the research of Rahman (2012), Pauzi et al. (2014), Ismail et al. (2016), and Shah and Hassan (2017).

According to Rahman (2012), Islamic banks have been actively helping the society especially the asnaf in the betterment of their life which is the opposite of the assumption where Islamic banks operate on profit-making basis only.

Pauzi et al. (2014) identified the importance of financial institutions particularly Bank Rakyat (a development financial institution in Malaysia) in distributing zakat in Malaysia. They found out by participating in zakat distribution, Islamic banks can help zakat institutions in locating asnaf in their own locality by looking at banks' branches in each state thus making zakat distribution fairer and more efficient.

Ismail et al. (2016) conducted a research with an objective to look at the role of Bank Rakyat in distributing their zakat in helping asnaf in improving their health. It was found that this bank is actively helping asnaf for their medical assistance, purchasing health aids and natural disaster relief by looking at the minutes of meeting and annual report.

Shah and Hassan (2017) did a compare and contract between two Islamic banks' zakat collection and distribution framework and the federal zakat authority's framework. They found out that federal zakat authority has several categories in their framework. On the other hand, by looking at Islamic banks' annual report, it is found out they have a different framework. The study recommends that Islamic banks are to follow the federal zakat authority zakat distribution framework or to formulate own framework to ensure good governance.

Hence, exploring the practices of Islamic banks in zakat distribution are the focus of this study especially in answering the question: is there any changes of zakat information pre- and post-Covid-19 pandemic in the annual reports of Islamic

banks in Malaysia. Hence, closing the gap in this latent study. This study however, only focusing on the 16 licensed Islamic banks in Malaysia, excluding development financial institutions and other commercial banks.

## 2 Methodology

### 2.1 Research Design

This study applies content analysis on the annual report or financial statements of Islamic banks for the year 2018 until 2020 to explore information on zakat distribution practices. Content analysis was preferred since it was the most commonly used method in examining written material including annual reports (Gray et al. 1995). Thus, these documents were searched on the individual's bank website and downloaded.

Consistent with study conducted by Muhammad and Hanefah (2020) this study however focused only to Islamic banks in gathering any related zakat information that can be found in the annual reports or financial statements including method in distributing zakat and the beneficiaries of zakat.

### 2.2 Sample

List of Islamic banks in Malaysia was taken from BNM website (Bank Negara Malaysia website 2021b) for the year 2021 as the sample size. According to the website, there are 16 Islamic Licensed Financial Institutions in Malaysia as follows (Table 1):

From the table above, there are 11 local Islamic banks and 5 foreign Islamic banks licensed under BNM. It is important to highlight that this research is specifically discussing on the distribution of zakat paid by the Islamic banks. Thus, the data was collected from Islamic banks that pay zakat in Malaysia. 4 foreign Islamic banks did not pay zakat. Therefore, all local Islamic banks and one foreign bank which is OCBC Al-Amin are included in this study.

Early observation found that the financial statements of each Islamic banks may ended at three dates which are 31<sup>st</sup> March, 30<sup>th</sup> June or 31<sup>st</sup> December each year as in table below (Table 2):

Most of the banks chose to publish their financial statements while the others published their annual reports as in table below (Table 3):

Based on the table above, there are two types of documents were used in this study, i.e., annual report and financial statements. According to Malaysian Institute of Accountants (MIA), annual report comprises information of a company including the financial report/statement. Additional non-compulsory information can also be found

**Table 1** Islamic banks in Malaysia

| No. | Bank  | Ownership |
|-----|---|-----------|
| 1.  | Affin Islamic Bank Berhad                                   | Local     |
| 2.  | Al-Rajhi Banking & Investment Corporation (Malaysia) Berhad | Foreign   |
| 3.  | Alliance Islamic Bank Berhad                                | L         |
| 4.  | AmBank Islamic Berhad                                       | L         |
| 5.  | Bank Islam Malaysia Berhad                                  | L         |
| 6.  | Bank Mualamat Malaysia Berhad                               | L         |
| 7.  | CIMB Islamic Bank Berhad                                    | L         |
| 8.  | Hong Leong Islamic Bank Berhad                              | L         |
| 9.  | HSBC Amanah Malaysia Berhad                                 | F         |
| 10. | Kuwait Finance House (Malaysia) Berhad                      | F         |
| 11. | Maybank Islamic Berhad                                      | L         |
| 12. | MBSB Bank Berhad  | L         |
| 13. | OCBC Al-Amin Bank Berhad                                    | F         |
| 14. | Public Islamic Bank Berhad                                  | L         |
| 15. | RHB Islamic Bank Berhad                                     | L         |
| 16. | Standard Chartered Saadiq Berhad                            | F         |

Source BNM Website

**Table 2** Financial year ended of Islamic bank

| No. | Bank                           | Financial year ended      |
|-----|--------------------------------|---------------------------|
| 1.  | Affin Islamic Bank Berhad      | 31 <sup>st</sup> December |
| 2.  | Alliance Islamic Bank Berhad   | 31 <sup>st</sup> March    |
| 3.  | AmBank Islamic Berhad          | 31 <sup>st</sup> March    |
| 4.  | Bank Islam Malaysia Berhad     | 31 <sup>st</sup> December |
| 5.  | Bank Mualamat Malaysia Berhad  | 31 <sup>st</sup> December |
| 6.  | CIMB Islamic Bank Berhad       | 31 <sup>st</sup> December |
| 7.  | Hong Leong Islamic Bank Berhad | 30 <sup>th</sup> June     |
| 8.  | Maybank Islamic Berhad         | 31 <sup>st</sup> December |
| 9.  | MBSB Bank Berhad               | 31 <sup>st</sup> December |
| 10. | OCBC Al-Amin Bank Berhad       | 31 <sup>st</sup> December |
| 11. | Public Islamic Bank Berhad     | 31 <sup>st</sup> December |
| 12. | RHB Islamic Bank Berhad        | 31 <sup>st</sup> December |

Source Author's own

**Table 3** Type of documents of Islamic bank published

| No. | Bank                           | Type of documents    |
|-----|--------------------------------|----------------------|
| 1.  | Affin Islamic Bank Berhad      | Annual Report        |
| 2.  | Alliance Islamic Bank Berhad   | Financial Statements |
| 3.  | AmBank Islamic Berhad          | Financial Statements |
| 4.  | Bank Islam Malaysia Berhad     | Annual Report        |
| 5.  | Bank Muamalat Malaysia Berhad  | Annual Report        |
| 6.  | CIMB Islamic Bank Berhad       | Financial Statements |
| 7.  | Hong Leong Islamic Bank Berhad | Annual Report        |
| 8.  | Maybank Islamic Berhad         | Financial Statements |
| 9.  | MBSB Bank Berhad               | Annual Report        |
| 10. | OCBC Al-Amin Bank Berhad       | Financial Statements |
| 11. | Public Islamic Bank Berhad     | Financial Statements |
| 12. | RHB Islamic Bank Berhad        | Financial Statements |

*Source* Author's own

in this report. On the other hand, financial report provides people who are interested in a company with financial information particularly on financial performance and its position during the year (A Guide To Understanding Annual Reports: Malaysian Listed Companies 2021). Thus, it is expected that those banks with annual reports disclose a lot more information than those with financial statements.

### 3 Results and Discussion

To ensure the accurateness in searching zakat information, the search tool was used to find the relevant zakat information. This enables the author to gain more information quickly rather than to read the whole report in its entirety. Results found are discussed below.

#### 3.1 *Affin Islamic Bank Berhad*

Affin Islamic disclosed in detail in its annual report regarding the beneficiaries of their zakat fund. There are a few entities that repetitively received zakat fund from Affin Islamic Bank namely Tabung Zakat Angkatan Tentera Malaysia, Zakat Majlis Agama Islam dan Adat Melayu Perak and Majlis Ugama Islam dan Adat Resam Melayu Pahang.

While other recipients were not the same throughout the three years particularly the non-governmental organizations (NGOs). Moreover, in response to Covid-19, they disclosed that they give zakat contribution to Hospital Kuala Lumpur, Hospital Sungai Buloh and IIUM Medical Centre. The fund was used in purchasing medical tools and equipment such as face masks, ventilators etc. Hence, reassuring the public about Islamic bank position as a helping hand in times of need and crisis.

In the year 2019 (Affin Islamic Bank Berhad Annual Report 2019) and 2020 (Affin Islamic Bank Berhad Annual Report 2020), Affin Islamic tabulated their beneficiaries according to the prescribed asnaf and the amount that was contributed to each of the categories which is a good practice as shown in the figure below (Fig. 1):

Based on the table shown above, we can understand that there are two asnaf that do not receive any zakat fund from Affin Islamic which are Gharimin and Riqab. However, no explanation for this can be found in the annual report.

### 3.2 Alliance Islamic Bank Berhad

The information found in the financial statements of Alliance Islamic for the year 2018 (Alliance Islamic Bank Financial Statements For the Financial Year Ended 31st March 2019) and 2020 (Alliance Islamic Bank Financial Statements For the Financial

#### Zakat contributions

| Asnaf Category                                       | Amount (RM)  |
|--|--------------|
| Fakir miskin (Poor, needy & OKU)                     | 600,189.38   |
| Fisabilillah   | 168,760.00   |
| Gharimin (Settling of debts for eligible recipients) | -            |
| Riqab  | -            |
| Muallaf  | 10,650.00    |
| Amil   | 2,510.17     |
| Others*  | 1,785,000.00 |
| Total  | 2,567,109.55 |

\* States Zakat Authority, Tabung Zakat Angkatan Tentera Malaysia (ATM) and Universities

**Fig. 1** Tabulation of zakat contribution that can be found in Affin Islamic Bank Annual Report 2020 at page 27. *Source* Affin Islamic Bank Annual Report 2020



Year Ended 31st March 2020) remain the same. However, for the year 2019, they disclosed that they allocated a certain amount for the purchase of emergency relief for frontliners at Hospital Kuala Lumpur and other hospital in the light of covid-19 (For and the Financial Year Ended 31st March 2020). In this regard, it is understood that information that can be found in the financial statements are not that much.

### ***3.3 Ambank Islamic Berhad***

There is no information worth mentioning as there is no changes of information throughout the three years.

### ***3.4 Bank Islam Malaysia Berhad***

Bank Islam has been using zakat fund as the main drivers of their Corporate Relation-related activities thus contributing to a great deal of information. Bank Islam being one of the most zakat payers among Islamic banks, has always paying their zakat to 14 states in Malaysia. They also mentioned about wakalah zakat and the entities that received zakat fund from the bank. They also distributed the zakat using bank's branches that are located in each state.

In 2019, Bank Islam create Centre of Social Finance with the aim to manage zakat, waqf and public creation (Bank Islam Malaysia Berhad Annual Report 2019). This is due to the huge amount of zakat and other charity funds that need a special care and management. Throughout the three years, zakat information increased, and the arrangement of information is understandable by the readers.

### ***3.5 Bank Muamalat Malaysia Berhad***

Bank Muamalat created Tabung Mawaddah in 2002 as a means to aid and arrange charitable activities to channel zakat fund to eligible recipients (Bank Muamalat Malaysia Berhad Annual Report 2018). Similar to Bank Islam, Bank Muamalat has been paying a huge amount of zakat amounting to millions every year thus the establishment of Tabung Mawaddah is crucial in managing zakat fund. Bank Muamalat also mentioned that they distributed their zakat to all eight (8) asnaf (Bank Muamalat Malaysia Berhad Annual Report 2019; Bank Muamalat Malaysia Berhad Annual Report 2020) however there was limited information on zakat distribution.

### **3.6 *CIMB Islamic Bank Berhad***

There is no information worth mentioning as there is no changes of information throughout the three years of study.

### **3.7 *Hong Leong Islamic Bank Berhad***

Hong Leong Islamic mentioned in their annual report 2020 that they received wakalah zakat from Pusat Pungutan Zakat Majlis Agama Wilayah Persekutuan (PPZ MAIWP) and listed all efforts that were done in their zakat distribution practices (Hong Leong Islamic Bank Berhad Annual Report 2020) which is a good practice.

### **3.8 *Maybank Islamic Bank Berhad***

There is no information worth mentioning as there is no changes of information throughout the three years of study.

### **3.9 *MBSB Bank Berhad***

There is no information worth mentioning as there is no changes of information throughout the three years of study.

### **3.10 *OCBC Al-Amin Berhad***

In the financial statements for the financial year ended 31<sup>st</sup> December 2018, OCBC Al-Amin listed in detail the recipients of their zakat fund that can be seen on page 15 (OCBC Al-Amin Financial Statements For the Financial Year Ended 31st December 2018):

“Relating to the financial year 2017, the Bank made zakat payment on its business to state zakat authorities and the zakat is computed using the growth capital method. The beneficiaries of the zakat fund were Pusat Pungutan Zakat Universiti Putra Malaysia (UPM), International Islamic University Malaysia (IIUM) Endowment Fund, Tabung Amanah Zakat Universiti Kebangsaan Malaysia (UKM) and Universiti Teknologi Mara (UiTM) Zakat Centre.”

However, year after that, they stated that they only pay their zakat to Lembaga Zakat Selangor (OCBC Al-Amin Financial Statements For the Financial Year Ended 31st December 2019; <https://www.ocbc.com.my/assets/pdf/Financial%20R>

[esults/pdf%20for%20OCBC%20Al-Amin/Stat%20Dec2020.pdf](#)). This may be due to changes of internal policy.

### ***3.11 Public Islamic Bank Berhad***

There is no information worth mentioning as there is no changes of information throughout the three years of study.

### ***3.12 RHB Islamic Bank Berhad***

There is no information worth mentioning as there is no changes of information throughout the three years of study.

This current study found that less information is disclosed in the financial statements befitting its name as described by MIA and on the other hand, a great deal of information can be found in the annual reports of these banks. However, how they arrange the information and what information to be disclosed are not the same. There are several factors that contribute to these findings:

1. Zakat information disclosure is voluntary and there are no specific regulations on how zakat information should be disclosed. Hence, it depends on the management of each bank to decide.
2. The perception of no body looks up for zakat information of Islamic banks. Hence, leads to no creativity in reporting.
3. Information such as beneficiaries of zakat is no longer deemed important. In this regard, it is no longer mentioned to be reported in the latest BNM Financial Reporting that was issued on 27<sup>th</sup> September 2019 (Bank Negara Malaysia Financial Reporting 2021) compared to the guideline that was issued on 2<sup>nd</sup> February 2018 (Bank Negara Malaysia Financial Reporting for Islamic Banking Institutions 2021).

## **4 Conclusion and Recommendation**

The main objective of this study was to explore the change of zakat information disclosure in the annual reports and financial statements of Islamic banks for the year 2018 until 2020. Only two banks which are Affin Islamic Bank Berhad and Alliance Islamic Bank Berhad disclosed their efforts in their reports in the response of Covid-19. Other banks may have done something but choose not to disclose in these reports or they might have disclosed it in their group annual report. The good practices that were shown by some banks should be taken as an example for other banks to take and implement. Hence, making the public more convinced of Islamic

banks' practices in becoming the helping hand and encouraging the companies to do more business transactions with Islamic banks.

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# The Legal Framework of Conversion from Development Financial Institution to Islamic Development Financial Institution in Malaysia Under Development Financial Institutions Act 2002



Azlin Suzana Salim and Rusni Hassan

**Abstract** Effective on 31<sup>st</sup> January 2016, Development Financial Institutions (Amendments) Act 2015 (Act 618) introduced major amendments to Development Financial Institutions Act 2002 (DFIA 2002) for enhancement of the legal and regulatory framework for Development Financial Institutions (DFIs) in Malaysia. The new Part IIIA DFIA 2002 inserts Shariah Requirement to realign with the provisions of Part IV Islamic Financial Services Act (IFSA 2013). Prior to these amendments, the conversion of Bank Pertanian Malaysia Berhad (Agrobank) to Islamic DFIs on 1<sup>st</sup> July 2015 was previously regulated under the ambit of Section 129 DFIA 2002. At the date of conversion, the remaining conventional loan assets of Agrobank amounting to RM59.2 million were permitted to be treated as Non-Shariah Assets where its income has to be recorded as liability and to be channelled to charity. This paper tries to analyze the current laws and regulations regulating conversion of DFIs to Islamic DFIs under DFIA 2002 and the legal issues and challenges faced by DFIs on conversion. This study also gathers information from library research and webinars related to this topic. The study finds Bank Simpanan Nasional (BSN), SME Development Bank Berhad (SME Bank), Bank Pembangunan Malaysia Berhad (Bank Pembangunan) and Export-Import Bank of Malaysia Berhad (Exim Bank) have to obtain written regulatory approval from Bank Negara Malaysia (BNM) to convert from Islamic Banking Window under Section 33B(1)(b) to Islamic DFIs under Section 33B(1)(a) DFIA 2002 with permission that certain percentage of unconverted conventional loan assets remain as Non-Shariah assets and become liabilities after conversion. This study shows that Section 33B(1),(2) and (3) DFIA 2002 incorporate the new stringent requirements for conversion of entire business of DFIs with literal interpretation that 100% of its assets must be in accordance with Shariah.

**Keywords** Legal framework · Conversion · Development Financial Institutions · Development Financial Institutions Act 2002

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A. S. Salim · R. Hassan (✉)

IIUM, Institute of Islamic Banking and Finance Malaysia, Kuala Lumpur, Malaysia

## 1 Introduction

In the year 2020, Islamic banking industry remains resilient and continues to post a health growth despite the challenge of pandemic crisis. According to Bank Negara Malaysia (BNM) Annual Report 2020, the market share of Islamic banking assets and Islamic financing form 34.2% and 41.0% respectively of the total industry size. In 2020, the annual growth of Islamic financing in Malaysia was recorded at 8.5%, much higher than 0.5% growth rate of the conventional counterpart. Total Islamic financing reached RM817.4 billion at the end of 2020 from RM753.61 billion in 2019 and total Islamic deposits and investment accounts reached RM889.95 billion at the end of 2020 from RM826.2 billion in 2019 (BNM 2020).

The positive growth includes contribution of Development Financial Institutions (DFIs) in Islamic Banking Industry (BNM 2020) whereby two DFIs namely Bank Kerjasama Rakyat Malaysia Berhad (Bank Rakyat) and Bank Pertanian Malaysia Berhad (Agrobank) are entirely carrying on business and activity in accordance with Shariah. Bank Rakyat is recognized as the second largest Islamic financial institution in Malaysia in terms of asset size amounting to RM111.75 billion (Bank Rakyat 2020). The total assets of Agrobank remained strong with an increase of 4.0% to RM18.2 billion in 2020 compared to RM16.9 billion in 2019 (Agrobank 2020). While the other four (4) DFIs; Bank Simpanan Nasional (BSN), SME Development Bank Berhad (SME Bank), Bank Pembangunan Malaysia Berhad (Bank Pembangunan) and Export-Import Bank of Malaysia Berhad (Exim Bank) carrying on Islamic Banking Business as Islamic Banking Window in addition to its existing conventional business.

The principal activities of these DFIs in development banking include strategies and efforts to continuously enhance Islamic Banking portfolio together with the existing conventional related financial services.

This paper tries to analyze the laws and regulation regulating conversion of DFIs to Islamic DFIs under Development Financial Institution Act 2002. Furthermore, this study aims to investigate the issues and challenges faced by DFIs for conversion to achieve its objectives. For that reason, this paper aims to provide suitable recommendation for the establishment Islamic DFIs under Section 33B(1)(a) DFIA 2002 to support conversion of DFIs to Islamic DFIs.

As part of its regulatory and supervisory framework, BNM monitors the activities and financial performance of DFIs to ensure that DFIs perform their mandated roles in a prudent manner, supported by strong corporate governance and best practices. BNM reported in Financial Stability and Payment System Report 2015 that amendments to the DFIA which came into effect on 31 January 2016 was a continuing efforts for an effective legal framework for DFIs in Malaysia. The amendments aim to better support the DFIs' specific mandates in a sustainable manner and reflect the important role of DFIs in supporting Malaysia's socio-economic development and inclusive growth (BNM 2015).

## 2 Literature Review

### 2.1 *Development Financial Institutions in Malaysia*

DFIs have roles and mandates which are linked directly to the country's national development objectives. This is evidenced from the establishment of DFIs with specific purposes to promote development of identified sectors, ranging from industrial and agriculture sectors to areas such as export promotion, infrastructure development as well as the small and medium enterprises (SMEs) (World Bank 2017). The establishment of each DFI is affected by the Act of Parliament to regulate its business and activity related to mandated role provided by the Act. For example, Bank Pertanian Malaysia was established by Bank Pertanian Malaysia Act 1969 and subsequently repealed by Bank Pertanian Malaysia Berhad Act 2008 for its corporatization (Agrobank 2019). Bank Simpanan Nasional was incorporated on 1 December 1974, under the Bank Simpanan Nasional Act 1974, which replaced the Post Office Savings Bank set up in 1948 (BSN 2019).

Prior to 2002, DFIs were not regulated and supervised by BNM. The issuance of Financial Sector Master Plan in 2001 marked the turning point that led to the strategic recommendation for the formation of proper regulatory framework of DFIs in Malaysia. Effective from 2002, the prescribed Development Financial Institutions (DFIs) in Malaysia are regulated and supervised within the purview of BNM. The governing law that regulates the prescribed DFIs is Development Financial Institutions Act 2002 (DFIA 2002), which came into force on the 15 February 2002 by virtue of PU (B) 51/2002.

The legal and regulatory framework continued to be enhanced in congruent with the common objectives of Economic Transformation Programme (ETP) and the Financial Sector Blueprint 2011–2020 that envisage further transformation of DFIs' capacity and capability to support their mandated roles. BNM published the Financial Sector Blueprint (Blueprint) on 21 December 2011 and one of the focus areas under the Blueprint was internalisation of Islamic finance.

There are limited literature studies on the Development Financial Institutions (DFIs) in Malaysia (Islam 2012, 2015). In addition to the limitation of the literature review, the term DFIs has been interchangeable used to denote the Non-Bank Financial Intermediaries (NBFIs) as mentioned by Islam (2012, 2015) and it is also referred to as Non-Bank Financial Institutions. Furthermore, the list of DFIs mentioned in each study may include DFIs regulated under DFIA 2002 and other DFIs which are not gazetted under the Act and it was not clearly defined by the researcher(s). Based on this observation, this paper will be focused on the prescribed DFIs listed and gazetted under Development Financial Institutions Act 2002 (DFIA 2002) regulated by BNM and the definition of DFIs and prescribed institutions as defined thereto. This study is crucial as it will fill the gap on the literatures related to DFIA 2002.

This article discusses new rules and requirements for the operation of DFIs provided by the amended Act and analyses its impact on the business of DFIs in Malaysia.



It is suggested that Regulatory Framework for Islamic Banking and Finance in Malaysia is modern and comprehensive after the enactment of IFSA 2013 and Financial Services Act 2013 (FSA 2013; Yussof 2013). Nonetheless one can question whether the regulatory framework for DFIs in Malaysia is comprehensive enough after the amendments to DFIA 2002, to what extent it is consistent with the provisions under IFSA 2013, and whether it can achieve its objectives in regulating the Islamic banking business activities (Yaacob 2013). This study proposes to bridge this gap with specific focus on the laws regulations regulating conversion of DFIs. It is also meant to fill the research gap of the available literatures pertaining to DFIs and DFIA 2002.

## ***2.2 Development Financial Institutions Act 2002***

DFIA 2002 is an Act that gives statutory authority to BNM to regulate and supervise DFIs in Malaysia. Section 3 of DFIA 2002 defines DFIs to mean “an institution which carries on any activity, whether for profit or otherwise, with or without any Government funding, with the purpose of promoting development in the industrial, agricultural, commercial or other economic sector, including the provision of capital or other financing facility” (DFIA 2002). The term “development” refers in DFIA 2002 includes “the commencement of any new industrial, agricultural, commercial or other economic venture or the expansion or improvement of any such existing venture” (DFIA 2002).

Under DFIA 2002, selected DFIs has to be prescribed and gazetted under the law to be placed under the purview of BNM. Prescribed institution further means “a development financial institution which is prescribed by the Minister of Finance under subsection 2(1) of DFIA 2002” (DFIA 2002). This mark the major difference between DFIs and other commercial Banks and investments banks licensed under the Financial Services Act 2013 (FSA 2013) and other Islamic Banks and International Islamic banks licensed under the IFSA 2013. The licenses are issued by Minister of Finance empowered under the FSA 2013 and IFSA 2013 who may, in circumstances permitted under the FSA or the IFSA. On the other hand, DFIs are not licensed institutions to operate and carrying on conventional and Islamic Banking and finance business.

The Minister of Finance is given the authority under Section 2(1) of the Act to prescribe any DFIs to be regulated and supervised under DFIA 2002 on the recommendation of BNM as provided under Section 2(2). Upon prescription by Minister of Finance and recommendation by BNM, an order will be published in the Gazette and issued to the prescribed DFIs. According to BNM, DFIA 2002 is structured to allow flexible application of the Act on selected DFI or on specific role.

Secondly, DFIA 2002 empowers BNM to be the administrator and regulatory body of the Act which serves as the centralized supervisory body for DFIs. BNM aims at ensuring effective and dynamic supervision of DFIs.

Thirdly, DFIA 2002 provides several mechanisms to enable BNM to monitor the role and objectives of DFIs. Among others, DFIA 2002 requires DFIs to submit their proposed business and development activities and projected sources of funding on an annual basis to BNM. In addition, BNM is empowered to specify lending activities of the DFIs. DFIA 2002 also provides a mechanism to monitor the management of Government-allocated funds to ensure that the funds are prudently utilised for their specified purposes.

Fourthly, DFIA 2002 emphasized on efficient management and effective corporate governance by prescribing the procedures for the appointment of directors and Chief Executive Officer. The Act also provides adequate mechanism to enhance disclosure of information in a timely and transparent manner. This is aimed at harnessing sufficient check and management.

Fifthly, DFIA 2002 provides a comprehensive supervision mechanism which incorporates prudential rules, on-site supervision, reporting requirements and disclosure standards. It also provides the regulator with the necessary powers to deal with any mismanagement and malpractices.

Sixthly, DFIA 2002 provides the mechanism to strengthen the financial position of DFIs through the specification of prudential requirements such as in the management of assets, capital and liquidity management.

### ***2.3 The Provision of Laws Governing Islamic Banking Business of DFIs Under DFIA 2002 Prior to Its Amendment***

It is important to note that the Islamic banking business and Islamic financial business carried out by DFIs was previously regulated under the ambit of Section 129 DFIA 2002 prior to its amendments effective in 2016.

Section 129(1) of the Act is a statutory provision of the law that give permission to DFIs to carry out Islamic Banking Business as Islamic Banking Window with approval of BNM. Section 129(2) of the Act further provides that the Islamic banking business or Islamic financial business carried on by DFIs shall be subject to the provision of DFIA 2002. Under Section 129(3) of the Act, BNM may issue directions to DFIs on matters relating to Islamic banking business or any other Islamic financial business and DFIs shall comply with the BNM's written direction.

Pursuant Section 129(4) of the Act, DFIs may seek the advice of the Syariah Advisory Council on the operations of carrying on Islamic banking business or Islamic financial business in order to ensure that it does not involve any element which is not approved by the religion of Islam. Section 129(5) specified that the term Islamic banking business referred to in this Act shall has the same meaning assigned to it by the Islamic Banking Act 1983 and the term Islamic financial business shall mean any Islamic financial business, the aims and operations of which do not involve any element which is not approved by the religion of Islam.

The abolishment of Section 129 of DFIA 2002 was effective on 31st January 2016 with the insertion of new Shariah Requirements under Part IIIA of DFIA 2002 on Islamic Financial Business. DFIs are not required under DFIA 2002 to obtain license under IFSA 2013 to carry out Islamic banking business and Islamic financial business because of its unique nature as regulated under DFIA 2002. The requirement on incorporation of Islamic bank is not applicable to DFIs. It is observed that, there is no specific guideline issued on the process of conversion and transformation of DFIs into Islamic DFIs. It is subject to internal policy and strategic direction of the respective DFIs within its Corporate Governance Framework and upon seeking Shariah advice from its Shariah Committee (Exim Bank 2020).

In regulating and supervising the DFIs, BNM is recognising the unique characteristics and functions of the DFIs, where the relevant stakeholders and ministries of the respective DFIs continue to be accorded the responsibility to provide broad policy direction on the strategic roles and targeted sectors supported by each institution.

#### ***2.4 Amendments to Development Financial Institutions Act 2002 in 2015***

Development Financial Institutions (Amendment) Act 2015 (Act 618) is an Act to amend DFIA 2002 effective on 31<sup>st</sup> January 2016. Major amendments to DFIA 2002 have been enforced to DFIs focusing on the enhanced areas and new areas. There are three (3) enhanced areas incorporated in DFIA 2002; (i) Corporate Governance, (ii) Business activities of DFIs, and (iii) Regulatory oversight. The new areas include (i) Shariah governance, (ii) Business conduct and consumer protection, (iii) Enforcement framework (BNM 2015).

The enhanced regulatory framework for DFIs shall continue to preserve DFIs unique characteristics in meeting its socio-economic mandates whilst maintaining its operational safety and soundness. In addition, the changes made also keep abreast with the changes in other regulatory laws governing financial institutions (BNM 2015).

Act 618 amended DFIA 2002 amongst other by inserting the new Part IIIA on Islamic Financial Business that gives permission to DFIs to carry on entire business or activity in accordance with Shariah under Section 33B(1)(a) or Islamic Banking Window under Section 33B(1)(b) with the prior written approval of the BNM. The new Part IIIA also provides that DFI shall ensure that its business, affairs and activities are in compliance with Shariah at all times and shall, if it becomes aware of any non-compliance, notify the BNM of the fact, cease from carrying on such business, affairs or activities and submit a plan to rectify the non-compliance. The new Part IIIA empowers the BNM to specify, in accordance with the advice of the Shariah Advisory Council, standards on Shariah matters which require the ascertainment of Islamic law by the Shariah Advisory Council. The highlights of the two (2) changes made to the Act are as follows (Table 1):

In order to ensure that the Islamic business activities of the DFIs comply with the same Shariah requirements as imposed on Islamic banks under Part IV IFSA 2013,

**Table 1** The highlights of two (2) new areas inserted in DFIA 2002. *Source* Authors' Selection

| Shariah requirements             |  |   |
|----------------------------------|--|---|
| 1                                | To ensure that the Islamic business activities of the DFIs comply with the same Shariah requirements as imposed on Islamic banks under the Islamic Financial Services Act 2013                                 | Part IIIA: Section 33A-33 N prescribe the Shariah requirements on areas which include Shariah compliance and Shariah governance as well as audit on Shariah matters   |
| Regulatory enforcement framework |  |   |
| 2                                | Provide a wider range of enforcement actions with the ability to respond effectively to non-compliance. This is to ensure that there is consistency in the financial services regulatory enforcement framework | Part VIIIA & Part VIIIB: Section 106A-106L incorporate broad and enabling provisions on penalty framework which encompass: (i) Administrative penalties, and (ii) Civil penalties, (iii) Criminal penalties |

new Part IIIA DFIA 2002 incorporates the same provisions on Shariah Compliance, Shariah Governance and Audit on Shariah Compliance equivalent to IFSA 2013. The requirements of Section 33B and 33C DFIA 2002 are specific provision for DFIs to regulate the establishment of Islamic DFIs under Section 33(1)(a) and to regulate the business and activity of Islamic Banking Window by DFIs with approval of DFIs. This study finds that these new requirements are effective on 31<sup>st</sup> January 2016 to realign with IFSA 2013 as described in Table 2.

**Table 2** Realignment of the new Part IIIA DFIA 2002 with Part IV IFSA 2013. *Source* Authors based on DFIA 2002 and IFSA 2013

| IFSA 2013 Part IV | DFIA 2002 Part IIIA | Provisions on new Shariah Requirements under Part IIIA DFIA 2002 to realign with Part IV IFSA 2013 |
|-------------------|---------------------|--|
| Sec 27            | Sec 33A             | Interpretation and application   |
| -                 | Sec 33B             | DFIs are permitted to carry on business or activity in accordance with Shariah                     |
| -                 | Sec 33C             | Requirement on DFIs approved under paragraph 33B(1)(b)   |
| Sec 28            | Sec 33D             | Duty to ensure compliance with Shariah   |
| Sec 29            | Sec 33E             | Power of the Bank to specify standards on Shariah matters  |
| Sec 30            | Sec 33F             | Establishment of Shariah Committee   |
| Sec 31            | Sec 33G             | Appointment of Shariah Committee member  |
| Sec 32            | Sec 33H             | Functions and duties of Shariah Committee and its members  |
| Sec 33            | Sec 33I             | Cessation as member of Shariah Committee   |
| Sec 34            | Sec 33J             | Notice of cessation as member of Shariah Committee   |
| Sec 35            | Sec 33K             | Information to be provided to Shariah Committee  |
| Sec 36            | Sec 33L             | Qualified privilege and duty of confidentiality  |
| Sec 37            | Sec 33M             | Appointment of person by prescribed institution to conduct audit on Shariah Compliance             |
| Sec 38            | Sec 33N             | Appointment of person by Bank to conduct audit on Shariah Compliance                               |

The comparative provision between Section 129 DFIA 2002 (before its amendments) and Section 33B (after amendments in 2015) are described in the following table (Table 3):

**Table 3** Comparison between the new Section 33B DFIA 2002 and previous Section 129 DFIA 2002. *Source* Authors

| <b>The new Section 33B DFIA 2002</b><br>Effective Date: 31st January 2016   | <b>The old Section 129 DFIA 2002</b><br>Effective Date: 15th February 2002<br>Deleted on 31st January 2016            |
|---|---|
| Section 33B(1)(a): Establishment of Islamic DFIs with approval of BNM<br>Section 33B(1)(b): Establishment of Islamic Banking Window by DFIs with approval of BNM              | There is no provision on establishment of DFIs as full-fledged Islamic DFIs   |
| Section 33B(2): Power of BNM to impose conditions for establishment of Islamic DFIs and Islamic Banking Window  | There is no specific provision on imposition of conditions by BNM   |
| Section 33B(3): Conversion of DFIs from Section 33B(1)(b) to Section 33B(1)(a) shall be subject to written approval of BNM  | There is no express statutory requirement on conversion subject to approval of DFIs and any conditions imposed by BNM |
| Section 33B(4): Criminal offence on conviction shall be liable to imprisonment for a term not exceeding ten years or to a fine not exceeding fifty million ringgit or to both | There is no provision on criminal offence on any contravention of Shariah Requirements                                |

It is evidenced from the achievement of SME Bank in 2019 where 95.9% of its Islamic Banking business comprises from Islamic Banking portfolio but still remain as Islamic Banking window under Section 33B(1)(b) DFIA 2002 (Fig. 1).

**Fig. 1** Composition of Financing as at December 2019 in SME Bank Malaysia. *Source* Annual Report SME Bank (2019)



Therefore, the amendments to DFIA 2002 have imposed the stringent requirements in order to realign with provision of IFSA 2013. The study conducted by ISRA in 2020 proposed a framework for conversion with limitation to DFIs issues on conversion considering the unique characteristics of DFIs (ISRA 2020).

### 3 Research Methodology

This study is a qualitative legal research which is based on the doctrinal legal research methodology (McConville and Chui 2007; Hutchinson 2013). The method is used to analyse the provision of DFIA 2002 on conversion and the implications after its amendments in 2015.

This study is an exploratory study by examining the relevant BNM reports, DFIs Annual Report and Financial Statements as well as other primary and secondary data available in the internet and library. This study uses library research and interviews to explore the current laws and regulations regulating conversion of DFIs in Malaysia under DFIA 2002, legal issues and challenges on conversion. Data which are acquired from annual report, related journals, regulations and library research limited to the research area since the amendments of DFIA 2002 five years ago. The interviews are important to complement the findings from library research in order to present a more comprehensive discussion.

### 4 Finding and Discussion

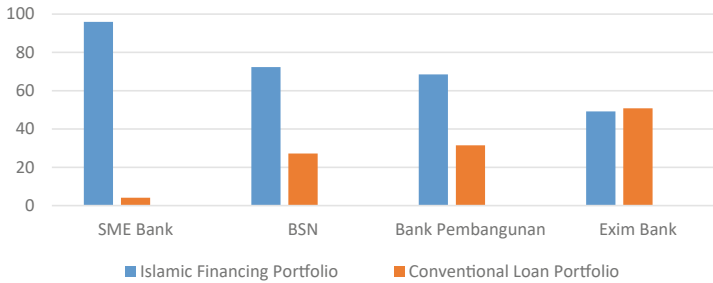
#### 4.1 *The Conversion of DFIs in Malaysia Under Development Financial Institution Act 2002*

Currently, there are two DFIs listed as Islamic Financial Institution under Section 33B(1)(a) DFIA 2002; Bank Rakyat and Agrobank followed by four DFIs on the platform of Section 33B(1)(b) which are carrying on Islamic banking business in addition to conventional banking businesses.

There is a big gap on the percentage of Islamic Financing and the conventional loan that have yet to be converted to Islamic financing. As at 31<sup>st</sup> December 2020, 49.2% of Exim Bank's financing portfolio comprises Islamic financing compared to 50.8% conventional loan portfolio. In the case of Bank Pembangunan, the milestones achieved in the year 2019, only 68.5% of its financing portfolio comprises Islamic financing (Bank Pembangunan 2019). BSN has received strong interest and support from the government and BNM towards facilitating the growth of Islamic Banking in which BSN had recorded a contribution of 72.3% from Islamic Financing and 65.0% from Islamic Deposits in 2019.

This achievement is far behind the SME Bank where the total Islamic financing portfolio of SME Bank has reached 95.9% compared to the remaining conventional loan portfolio at 4.1% (SME Bank 2019). The total assets of SME Bank grew in tandem with the profit before tax and zakat at 0.4% registering a total of RM9.87 billion in 2019 compared to RM9.83 billion in the previous year. Under SME Bank Tazkiya Project, the focus of transformation initiated by SME Bank into a full-fledged Islamic Development Bank is not only on the conversion of assets and liabilities but

also on adopting a Shariah-compliant culture throughout its business activities (SME Bank 2019) (Fig. 2).



**Fig. 2** The total Islamic financing portfolio of DFIs as compared to the remaining conventional loan. *Source* Authors’ Selection based on Annual Report of DFIs 2019–2020

The above four (4) DFIs are committed to support Islamic Banking Industry in addition to its existing conventional business. However, BSN, Bank Pembangunan, Exim Bank and BSN have the big gap on the remaining conventional loan that have yet to be converted to Islamic Financing comprise 27.2%, 31.5% and 50.8% respectively. DFIs may have the specific focus and strategy to achieve its objective and target on conversion (Table 4).

**Table 4** List of DFIs under Section 33B(1)(b) and its Islamic financing portfolio as at December 2019. *Source* Author’s Selection based on Annual Report of DFIs

| DFIs under Section 33B(1)(b) | Islamic financing portfolio in 2019 (%) | Conventional loan portfolio in 2019 (%) |
|------------------------------|---|---|
| SME Bank                     | 95.9                                    | 4.1                                     |
| BSN                          | 72.3                                    | 27.7                                    |
| Bank Pembangunan             | 68.5                                    | 31.5                                    |
| Exim Bank                    | 49.2                                    | 50.8                                    |

In order to achieve the long term objective, Exim Bank reaffirms its commitment to be a preferred DFI for Malaysian businesses growth with focus on Islamic Financing and Takaful by the year 2025 (Exim Bank 2020).

SME Bank still have 4.1% conventional loan portfolio to fulfill its main objectives on conversion and to provide better framework for full fledged Islamic Financial Institution. However, the interview confirmed that the word “entire” in Section 33B(1)(a) is very general as to connote the 100% percentage of Islamic Financing Portfolio required to be achieved by SME Bank and other DFIs.

Based on the previous research, legislation and regulation is one of the challenges towards conversion due to non-existence of comprehensive framework for the conversion (Shafii 2016). The supervisory authorities are faced with considerable regulatory issues and challenges that needs to be address to facilitate the Islamic banking industry (Rafay and Sadiq 2015). A strategic plan for conversion must includes timeline, legal approval from regulatory authorities, management commitment and customers' participation (Ahmad 2020).

#### ***4.2 Issues and Challenges to Expedite the Conversion***

There are issues and challenges faced by DFIs on conversion. The main challenge is the statutory requirement of law to obtain approval from BNM. It is observed that SME Bank is very closed to 100% conversion as 95.9% of its portfolio comprises from Islamic financing. Even though the gap of 4.1% on conventional loan portfolio is very small to be converted to Islamic financing, the approval of BNM has to be obtained prior to announcement as Islamic Banks. In 2017, State Bank of Pakistan issued Guidelines for Conversion of a Conventional Bank into an Islamic Bank with requirement that the bank would complete the conversion process within a maximum period of three years from the date of approval subject to extension of time (Pakistan 2017). However, currently there is no specific guideline issued by BNM to support the conversion of DFIs to Islamic DFIs.

The second challenge is on changes of law. Bank Rakyat was benefited from the conversion prior to enactment of DFIA 2002 through the establishment of Islamic branch that completed in 2002. When DFIA 2002 enacted and came into effect on 15 January 2002, Section 129 regulates the Islamic Banking activity of DFIs. It has to be observed that the conversion of Agrobank to full fledged Islamic Bank was done under the ambit of Section 129 DFIA 2002 which was before the major amendments DFIA effective in 2016. Therefore, after Agrobank has successfully converted to Islamic DFIs in 2015, the amendment took effect and the remaining four (4) DFIs; Bank Pembangunan, BSN, Exim Bank and SME Bank shall be subject to Section 33B(1)(b) DFIA 2002, while Bank Rakyat and Agrobank fall under the ambit of Section 33B(1)(a) DFIA 2002.

The third challenge is to convert entirely the remaining conventional loan assets to Islamic Financing. SME Bank, Exim Bank, Bank Pembangunan and BSN have to meet the requirement of law and conditions of BNM to convert 100% entire business and activities according to Shariah. This study finds that at the announcement date of conversion of Agrobank into Islamic DFI in July 2015, the remaining conventional loan assets amounting to RM59.2 million were permitted to be treated as Non-Shariah Assets where its income has to be recorded as liability and to be channelled to charity (Agrobank 2015). After 6 years of conversion of Agrobank, there are remaining conventional loan assets amounting to RM6364,000 as at financial year end December 2020 which were reflected as Non Shariah Asset in the financial statements of Agrobank (2020). The income earned from conventional loan and



Non-Shariah assets are treated as liabilities in line with Shariah requirements of giving it away as charitable amount (Table 5).

**Table 5** Non-Shariah assets of Agrobank after conversion to Islamics DFIs. *Source* Author's selection based on Annual Report and Financial Statements of Agrobank

| 2020   | 2019       | 2018       | 2017       | 2016       | 2015        |
|--|------------|------------|------------|------------|-------------|
| Non-Shariah Asset (NSA)  |            |            |            |            |             |
| 6,364,000  | 11,914,000 | 17,027,000 | 60,596,000 | 84,934,000 | 116,269,000 |
| Income earned from Non-Shariah Asset and channelled to charities |            |            |            |            |             |
| 2,337,261  | 4,214,125  | 2,604,674  | 2,441,812  | 2,186,177  | 437,930     |

The fourth challenge is the lack of participation from high risk Customer involved in sectoral business agriculture, construction, import-export which the risk exposure is very high. The possible reason for this current situation is that the cooperation of the corporate customer is important to do complex documentation for the purpose of conversion of corporate loan. On the other hand, the cost and the fees is not attractive. If it cannot be said that the costs to conversion is high and then it falls back to the need and motivation of the customer for conversion.

The fifth challenge lies in attracting the remaining conventional customer to participate in conversion scheme. There are some attractive promotion to the customer for example conversion scheme, free moving cost, media exposure and fund support from DFIs during the campaign period.

## 5 Conclusion

Development Financial Institutions in Malaysia are aiming towards conversion to Islamic DFIs to support the growth of Islamic Banking industry. Bank Pembangunan was aimed to become a full-fledged Islamic bank by 2020 (Bank Pembangunan 2019). Exim Bank has the long term objective to become Islamic DFIs by the year 2025 (Exim Bank 2020). SME Bank's Islamic Financing Portfolio has reached 95.9% at the end of 2019 (SME Bank 2019). While BSN has strong support from government and BNM towards Islamic Banking Industry as 72.3% comprises Islamic Financing portfolio (BSN 2019).

BNM as a regulatory body has strengthened its legal and regulatory framework through the amendments of DFIA 2002 by inserting new provision of law under Section 33B(3) DFIA 2002 that prohibit conversion of a DFI under Section 33B(1)(b) DFIA 2002 to Islamic DFI under Section 33B(1)(a) without approval of BNM. Contravention of Section 33B(1) or (3) is tantamount to criminal offence under Section 33B(4) and shall on conviction be liable to imprisonment for a term not exceeding ten years or to a fine not exceeding fifty million ringgit or to both.

There are currently six DFIs gazetted as prescribed institution under DFIA 2002 and regulated by BNM. At the effective date of amendment on 31<sup>st</sup> January 2016, Bank Rakyat and Agrobank are the only two DFIs recognized as Islamic DFIs under Section 33B(1)(a). The other four (4) DFIs remain carrying on Islamic Banking Business as Islamic Banking Window in addition to its existing conventional business under Section 33B(1)(b) DFIA 2002. The study finds after the year 2019, SME Bank, BSN, Bank Pembangunan and Exim Bank have strong Islamic Financing portfolio comprise 95.9%, 72.3%, 68.5 and 49.2% respectively towards conversion. This shows that DFIs have strong commitment to reach its objective to convert its entire business activities in accordance with Shariah under Section 33B(1)(a) DFIA 2002.

One of the main challenges to convert to Islamic DFIs is the new stringent requirement of Section 33B(1)(a) DFIA 2002 that impose a condition for conversion of entire business of DFIs with literal interpretation that 100% of its assets must be in accordance with Shariah. The statutory requirements of laws provide that the written approval of BNM must be obtained by DFIs subject to fulfillment of conditions that may be imposed by BNM to ensure that the Islamic business activities of the DFIs comply with the same Shariah requirements as imposed on Islamic banks under the Islamic Financial Services Act 2013.

The study finds that BNM has the full authority under the law as the regulatory body to give written approval to DFIs under Section 33B(1)(a),(2) and (3) for conversion of DFIs to Islamic DFIs with remaining conventional loan assets to be treated as Non-Shariah Assets and become liabilities of DFIs. The application submitted by DFIs to become Islamic DFIs may be taken into consideration based on strong commitment of DFIs towards conversion that all business and activities are in accordance with Shariah and there are action plans to convert remaining conventional loan assets and liabilities within a reasonable period. There are valid reasons that these conventional loan assets and liabilities cannot be converted including impaired loan due to some acceptable reasons from Shariah perspective. For this condition, as long as Non-Shariah Assets are treated in accordance with Shariah requirements where the income earned from conventional loan are treated as liabilities in line with Shariah requirements of giving it away as charitable amount, it should be acceptable.

The study further finds the interpretation of the word "entire business" under the said statutory requirements of law as stipulated by DFIA 2002, should not be confined to strictly mean that entire or 100% assets and liabilities must be Islamic. It should also mean that those remaining conventional loan assets and liabilities (within certain acceptable threshold) and their income are treated in line with Shariah. In substance, it still means that the entire business are operated in accordance with Shariah.

The issues of conversion of conventional loan to Islamic Financing portfolio have to be resolved on case to case basis to close the gap of financing portfolio towards 100% Islamic Financing. The supports from BNM for the specific guidelines and framework on conversion of DFIs and strong commitment from DFIs on conversion of the remaining conventional loan assets may expedite the conversion of DFIs in the future.

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# Deepening Financial Inclusion in Nigeria Through Islamic Financial Offerings



Tesleem Olajuwon Isa Akosile and Nor Razinah Mohd Zain

**Abstract** This research examines the adequacy of financial inclusion in the north-west and northeast of Nigeria and the role of Islamic finance in deepening financial inclusion in those identified regions. By adopting qualitative analysis, content analysis is used to determine the status of financial inclusion in Nigeria. The study relies on secondary data collected from official documents, working papers, articles, e-books, relevant websites, and online resources. From this study, it is found that providing all necessary accesses to financial products and services to all members of Nigerian society is important for financial inclusion. Such accesses must be done in an efficient, effective and sustainable manner. Based on the findings, it is recommended for Islamic banks in Nigeria to provide more allocations for equity-based Islamic financial contracts in their financing activities. Moreover, it is necessary for the Central Bank of Nigeria (CBN) as the main regulator of banking and finance industry in Nigeria to consider and issue guidelines and regulations that can expand the country's financial inclusion through Islamic equity-based financial contracts and products.

**Keywords** Financial inclusion · Islamic finance · Nigeria · Equity-based Islamic financial contracts

## 1 Introduction

The bid to democratize access to financial services and products to all echelons of the society in a sustainable, effective and efficient mode has been the core of financial inclusion drive. This is crucial to stimulate overall socio-economic wellbeing of the people. No doubt, securing the common economic wellbeing of its citizens is one of the priorities of every sovereign country, including Nigeria. As embodied under Section 16 (2) of the Constitution of the Federal Republic of Nigeria 1999

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T. O. I. Akosile (✉) · N. R. M. Zain  
IIUM Institute of Islamic Banking & Finance, Kuala Lumpur, Malaysia

N. R. M. Zain  
e-mail: [mumtaz\\_razi@iium.edu.my](mailto:mumtaz_razi@iium.edu.my)

(as amended), among other provisions, that the State shall direct its policy towards ensuring balanced economic development; harness and distribute national resources to serve the common good; and ensure that the national economic system is operated in a style that will not permit the concentration of wealth or the means of production and exchange in the hands of few individuals or of a group. From the nature of this provision, it is apparent that balanced economic development should be treated with the notion of equality among Nigerians. However, recent socio-economic survey results revealed that although there is a slight decrease in the percentage of financially excluded adults in 2020 from what it used to be in 2018, on the other hand, the actual number of adults who are financially excluded had increased from 36.6 million in 2018 to 38.1 million in 2020, as population growth outpaces the rate of financial inclusion growth (EFInA 2021). Looking at the current economic scenario among Nigerians currently, financial inclusion should be heavily considered and it is necessary to be achieved. It is reported that the Central Bank of Nigeria (CBN), in its revised National Financial Inclusion Strategy (NFIS) acclaimed that “financial inclusion is achieved when adult Nigerians have easy access to a broad range of formal financial services that meet their needs at affordable costs” (CBN 2018). The recent survey result when juxtaposed with the CBN’s financial inclusion strategy reveals that a lot of work still needs to be done.

Globally, the economic inequalities have exacerbated a wide-spread of poverty. This reality remains as one of the main concerns of heads of governments in the modern world. As a part of their responses to this matter, the world leaders adopted the Millennium Development Goals (MDGs) under the auspices of the United Nations in the year 2000 (United Nations n.d.). Under the MDGs, the efforts to eradicate extreme poverty and hunger became one of the priorities. They also provided some other goals that touched on the issues of economic inequalities, while placing financial inclusion as a crucial key driver towards achieving those goals. At the expiry of the MDGs in September 2015, the world leaders once again gathered to endorse the Sustainable Development Goals (SDGs) that stand out with 17 goals. Again, ‘No Poverty’ becomes one of the prime goals for sustainable development worldwide. Among other 17 goals that are targeted under SDGs are addressing the issues on climate change, unemployment, inequality, instability, diseases and poverty (Office of the Senior Special Assistant to the President on Sustainable Development Goals n.d.).

Nigeria is one of the member states that confirmed their undivided intention to achieve the SDGs before their expiry date in 2030. It is identified that in relation to Nigeria, “one major challenge to effective poverty reduction in the country is the very limited reduction effect of economic growth” (Office of the Senior Special Assistant to the President on Sustainable Development Goals n.d.) and that the country’s recorded economic growth was “not entirely inclusive and neither did it reduce poverty or even generate employment” (Office of the Senior Special Assistant to the President on Sustainable Development Goals n.d.). These statements were parts of the verdict passed by the Office of the Senior Special Assistant to the President on MDGs in its end-point report on Nigeria’s MDGs journey. Despite the involvement of Nigeria with MDGs, and with the involvement of many institutions such

as Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the National Poverty Eradication Programme (NAPEP), the level of poverty remains high. At the end of MDGs, it is apparent that Nigeria did not meet the goal to eradicate extreme poverty and hunger (Office of the Senior Special Assistant to the President on Millennium Development Goals n.d.).

With the introduction of SDGs, starting from 2016, the Nigerian Government takes serious efforts to overcome poverty, hunger and promote financial inclusion in the Nigerian society. They initiated the National Social Investment Programme which consists of a variety of programmes. This included the N-power programme, Conditional Cash Transfer (CCT) programme, Government Enterprise and Empowerment Programme (GEEP) and Home Grown School Feeding Programme (HGSF) (The State House n.d.). Unfortunately, despite of spending billions of naira on the National Social Investment Programme, the analysts have expressed concerns that the said programme may not be effective to lift out approximately 112 millions of poor Nigerians from poverty (Taiyese 2019). Thus, they advocated for the need to re-design the programme to tackle the scourge of poverty effectively, in addition to expanding the frontiers of solutions from all relevant aspects to eradicate poverty such as from social, political and particularly economic aspects (Taiyese 2019).

Islamic finance was re-introduced in Nigeria amidst socio-political upheaval (Latona 2020). There have been scholastic views that Islamic finance is designed to address financial inclusion and its challenges, and has the potential to eradicate poverty. Their views are formulated based on two applicable mechanisms in Islamic finance, i.e., (i) the promotion of risk-sharing contracts, and (ii) the wealth redistribution instruments. Mohieldin et al. (2012), Raimi et al. (2015) and Sadiq et al. (2020) in their studies advocated the needs for Nigerian regulators, among others, to consider Islamic equity-based financial contracts as fiscal policy instruments to complement the government's existing economic policies. Additionally, financial products that derived from such Islamic equity-based financial contracts should be considered as fiscal instruments for financial inclusion in Nigeria.

Hence, this study aims to examine the role of Islamic finance that can be utilized by the main regulator of Nigerian financial industry i.e., CBN, not only to enhance, but deepen financial inclusion, particularly in the northwest and northeast of Nigeria. The idea to expand financial inclusion is emphasized on sustainable wealth creation which must be done in an inclusive manner throughout the society, instead of a mere access to financial services via network of non-bank touchpoints which seems to be perceived as the main objective of financial inclusion. Furthermore, this study provides a call for expansion of solutions through Islamic finance in eliminating the scourge of poverty and financial exclusion in Nigeria.

This study is divided into four sections. Section 1 provides an overview of the study. Section 2 examines relevant literatures on financial inclusion through the Islamic finance and its offerings. Section 3 briefly discusses the methodology adopted in the study. The state of financial inclusion in the northwest and northeast regions of Nigeria is the focus of Sect. 4, while Sect. 5 rounds up the study and proffers recommendations for policy makers and regulators. The research gaps are also highlighted.

## 2 Literature Review

Park and Mercado (2015) perceived financial inclusion as an element that critical to be included in the inclusive economic growth through the access to financial services. The access to financial services enables a person or entity to decide for their long-term investments and consumption needs, actively participate in economically productive venture and withstand sudden short-term shockwaves. It can also be seen as the establishment of financial services and products which are made cheaply available to the weaker constituents of the society. Financial inclusion has been a central point of discussion in a bid to stimulate poverty alleviation and sustainable economic development by numerous international and regional institutions. They can be seen from the efforts made by the Group of Twenty (G20) forum, the Alliance for Financial Inclusion (AFI), the Organization for Economic Cooperation and Development Countries (OECD), the Association of Southeast Asian Nations (ASEAN), and the Asia–Pacific Economic Cooperation (APEC) (Wismantoro et al. 2020). Description on what is financial inclusion all about has been offered by a number of authors. One of them described it as to enable families and entities an access to financial services and products that suits their respective needs at reasonable costs (Özhan and Özparlak 2021). Another description defines it as the practice of bringing into the formal financial system people who were otherwise excluded (Zhu et al. 2019). It is also about creating access to formal financial services for people who are otherwise excluded in such a fashion that able to engage in economic activities and improve their economic wellbeing (Adil and Jalil 2020). There are certain segments of citizens that continued to be financially excluded for numerous reasons; thus, precluding them from enjoying the participation in the social and economic life. Recently, Clichici (2020) made a study on the issues relating to the global financial inclusion and its positive impact on the economic advancement. He found that internationally, there are disparities in the level of financial inclusion which requires to be addressed through advertent policy measures. In examining the varying tactics adopted by governments around the globe to achieve considerable financial inclusion in their countries, it is found that the rates of success or failure, and the point of strength and weakness have been referred to as their respective drives for financial inclusion. Bannigol and Hundekar (2018) in their research described that financial inclusion in present times is all about financial markets that serve more persons through various products and services, but at optimum of cost. They surmised that microfinance, which was previously restricted to provide lending to the lower class, has now be expanded to include savings, payment and insurance for the lower income segment of a given society, and this is not only referring to loans only.

Naceur et al. (2015) conducted a survey on the extent of Islamic banking that can be utilized to increase financial inclusion. Their focus was on the Muslim majority countries who are also the members of the Organization for Islamic Cooperation (OIC). They found out that a major reason why most of citizens from the focused countries excluded themselves from financial services was due to the fact that the



banking system in their respective countries was operated on a system that is at variance with their religious convictions. This finding was also found in a recent study by Sayed and Shusha (2019). Naceur et al. (2015) observed that the access to finance remains static in these countries, despite of the adoption that can be considered as cutting-edge with end-point financial service deliveries. Consistent with the analysis of empirical results, the researchers suggested for the adoption of Islamic banking as the required recipe for financial inclusion in these Muslim majority countries. Strategic steps which include the review of operating mode, developing the micro-finance offering and equity funds, and finally the institutionalization of the Islamic wealth redistribution mechanisms should be considered for the effective financial inclusion. Iqbal and Mirakhor (2012) adopted a broader approach to examining financial inclusion through Islamic finance. The duo noted that financial inclusion and its assesses have essential influences on economic development. They acknowledged that the partial success of the conventional mechanisms in promoting financial inclusion includes the introduction of micro-insurance and micro-finance for small and medium enterprises (SMEs).

Consequently, Iqbal and Mirakhor (2012) recommended for the adoption of Islamic finance as an alternative in achieving sustainable financial inclusion through risk sharing instruments, rather than risk-transfer instruments that are characterized in the conventional financial system. This is in addition to the redistributive instruments available in Islamic finance, such as Zakah, Sadaqat, and Qard Hassan that are unique to Islamic financial system. According to them, these redistribute instruments provide a comprehensive framework for financial inclusion enhancement which remains lacking in the conventional financial system. However, based on their observation, the Muslim majority countries have yet to optimize the benefits as embedded in the redistributive instruments in their respective jurisdictions, especially towards promoting sound and sustainable financial inclusion. Clearly, the duo left out the consideration or discussion on Waqf (endowments) as one of the redistributive instruments of the Islamic financial system. A deeper assessment of the role of Islamic finance in enhancing financial inclusion in the OIC member countries was later undertaken by Mohieldin et al. (2012). They noted that the core principle of Islam in the areas of commerce and economy is the emphasis on social justice and inclusion between the rich and the poor within the society. They restated the rounded approach of Islamic finance's response to the challenge of financial inclusion through risk-sharing and redistributive mechanisms. While the former instruments stimulate the effective access to finance, the latter fight towards poverty eradication, thus leading towards a sound and vibrant socio-economic wellbeing. In their research, they also established the historical roots of these mechanisms and the current gaps in their implementation in many Muslim majority countries. Thus, they urged the respective policy makers, regulators and stakeholders in the various jurisdictions to explore these mechanisms for financial inclusion and poverty eradication by providing the requisite regulatory regime and enabling financial infrastructures for their effective implementations.

Drissi and Angade (2017) presented the dimension of microfinance as a veritable tool for financial inclusion and posited that there seem to be a good interlink

between the Islamic principles of solidarity and the objectives of microfinance. The microfinance can be a sustainable way in including the financially excluded groups. Tahiri Jouti (2018) noted that Islamic finance would have more impacts on financial inclusion. The same was believed and shared by Abdul-Majeed Alaro and Alalubosa (2019), where they opined that a microfinance operating on the Shariah tools of *Zakat*, *Waqf*, *Mudarabah* and *Musharakah* would be a solution for poverty alleviation and financial inclusion in Nigeria. These offerings of Islamic finance has warmed up to the European minds to Islamic finance, where it receives rapid acceptances (Biancone and Radwan 2018). Even with such positive development, it is said that the full potentials of Islamic finance currently, is yet to be fully achieved; whereby, further innovative approaches to Islamic finance are still required (Mirakhor et al. 2015). Moreover, there is an urgent need to bridge the gap between the practice and theory of Islamic finance, especially in the areas of risk-sharing financing offerings and its social impact financial offerings (Biancone and Radwan 2019).

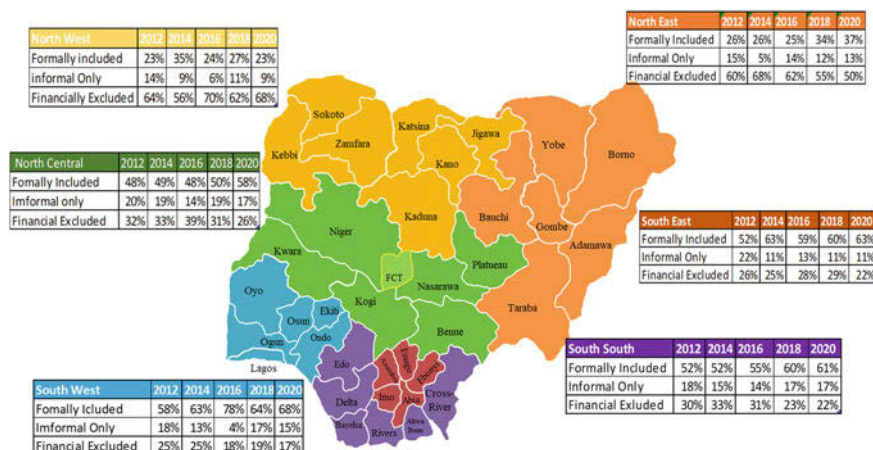
### 3 Methodology

This study is conducted by using the qualitative research methodology. In doing so, it relies on the collected secondary data as obtained from official publications, working papers, articles, e-books, websites and online resources. This data collection is important to demonstrate the needs for the financial regulators in Muslim majority countries, especially in Nigeria, to promote inclusive access to finance in their respective jurisdictions. This can be done by deepening financial inclusion through the promotion of risk sharing by the utilization of Islamic equity-based financial contracts. The adoption of secondary data as applicable here mitigates the possibility of ethical issues that may taint the study, while affording a less cost research process. The content of the obtained data is analyzed in order to arrive to a plausible finding. These secondary data also comprise of the official publications of central banks and other relevant financial regulators, which include among others i.e., reports and communique of diplomatic entities. Articles from selected journals, conference presentations and reports of multilateral organizations are also considered to achieve a wide range of data collection.

## 4 Assessment of the State of Financial Inclusion in Nigeria

### 4.1 *Financial Inclusion in Northeast and Northwest of Nigeria*

In Nigeria, series of efforts, policies and programmes have been designed towards addressing challenges of financial inclusion. However, the challenges appear to be



**Fig. 1** Author’s own illustration of Financial Access by Geopolitical Zones in Nigeria from EFInA access to financial services in Nigeria 2012/2014/2016/2018 and 2020 surveys

far from being resolved. The revised National Financial Inclusion Strategy (NFIS) released by CBN in October of 2018 revealed that, by a survey conducted in 2016, northeast states<sup>1</sup> and northwest states<sup>2</sup> of Nigeria had 62% and 70% financial exclusion rates respectively (CBN 2018). An updated survey by the Enhancing Financial Innovation & Access (EFInA) in 2018, which was released in 2019, stated that the financial exclusion rates for northeast and northwest states of Nigeria were going down to 55% and 62% respectively (EFInA 2019).

Based on the Nigerian National Bureau of Statistics (NBS)’s report of 2019, that was released in May of 2020, they revealed that there is more than 82.9 million (more than 40%) Nigerians are poor. There are 17 states with the poverty level above the national average which included the 7 northwest states, and the 5 northeast states. Cumulatively, 12 northern states partly accounted for the highest poverty rate and can be considered as financially excluded sections of the country. These regions are generally known to be Muslim majority regions of the country (Fig. 1).

By following the latest survey completed by EFInA on financial access in Nigeria for the year 2020, as released in June of 2021, the northwest and northeast states have yet to record meaningful improvements in the financial inclusion among their adult population (Table 1).

The data that can be seen above indicates that there seems to be an urgent need for a recalibrated financial inclusion strategy, fiscal policy, and regulatory framework which should be considered by CBN and other relevant stakeholders in Nigeria’s financial industry. This is essential to provide a sound and more inclusive financial system, while fostering the objectives of Shariah (Maqasid Al-Shariah) as the

<sup>1</sup> Adamawa, Bauchi, Borno, Gombe, and Taraba States. However, Borno State was excluded from the NBS 2019 statistics data because of the insecurity factor.

<sup>2</sup> Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto and Zamfara States.

**Table 1** Author's own illustration from EfinA 2020 report on financial inclusion in Nigeria by Geopolitical Zones

| S/N | Geopolitical zones | Banked | Other formal (Non-bank) | Informal | Excluded |
|-----|--------------------|--------|-------------------------|----------|----------|
| 1.  | North West         | 16%    | 7%                      | 9%       | 68%      |
| 2.  | North East         | 33%    | 4%                      | 13%      | 50%      |
| 3.  | North Central      | 51%    | 7%                      | 17%      | 26%      |
| 4.  | South East         | 58%    | 5%                      | 11%      | 26%      |
| 5.  | South South        | 55%    | 6%                      | 17%      | 22%      |
| 6.  | South West         | 63%    | 5%                      | 15%      | 17%      |

backbone of Muslim majority society. Moreover, it is also important for achieving Sustainable Development Goals (SDGs) at the international scale. In addition, it will allow the expansion of entrepreneurship, innovations, job creations and inhibit the upward trajectory of poverty and hunger.

## 4.2 *State of Nigeria's Financial Inclusion Strategy*

Nigeria's apex Bank and the key financial regulator, the Central Bank of Nigeria (CBN), in line with its mandate, had launched the National Financial Inclusion Strategy (NFIS) on 23<sup>rd</sup> of October, 2012. The objective of such exercise was to reduce the financial exclusion rate from 46.3% in 2010 to 20% by 2020. Furthermore, the NFIS aims to make sure that adult Nigerians to have access to payment services, with 21.6% in 2010 to 70% in 2020. While those with access to savings should be increased from 24.0 to 60% and credit from 2 to 40%; they also targeted the access to insurance from 1 to 40%, and pensions from 5 to 40%. All of these should be achieved by the year 2020. In addition to NFIS, CBN further projected to improve the channels through which these services would be delivered. Thus, branches of banks for deposited money were targeted to increase from 6.8 units per 100,000 adults in 2010 to 7.6 units per 100,000 adults in 2020; branches of banks for microfinances to be increased from 2.9 units to 5.5 units; ATMs from 11.8 units to 203.6 units, POSs from 13.3 units to 850 units, mobile agents from 0 to 62 units (Central Bank of Nigeria n.d.). Due to the spread of COVID-19 pandemic, it seems that the achievements of the set targets may have been delayed.

CBN in their official document on financial inclusion strategy considered three barriers to financial inclusion. Firstly, there are the demand-side barriers which include low financial literacy levels, irregular income and unemployment. Secondly, there are the supply-side barriers which entail unsuitable financial products, distance to financial access points, and high cost of financial services. Thirdly, regulatory barriers to financial inclusion which include distrust towards financial institutions, clumsy due diligence requirements, and high rates of corruption (CBN 2018). One

noticeable flaw of CBN's 2012 strategy was the apparent underrating of the role to be played by Islamic finance in stimulating financial inclusion in Nigeria, and the same can be seen in relation to Islamic insurance i.e., Takaful. An assessment and a review on the National Financial Inclusion Strategy were carried out between October 2017 and June 2018. One of the key findings from the engagement of stakeholders revealed that there was 'low or non-adoption of financial products owing to cultural and religious factors slowed down financial inclusion in the Northern parts of the country'. The revised National Financial Strategy of 2018 gave improved attention to Islamic finance when CBN included it in their strategic design principles. They said in relation to Islamic finance to "provide a level playing field and incentives to promote the participation of non-interest financial institutions in the provision of financial services to excluded groups and region" (CBN 2018). A recent study revealed that CBN is seriously combating financial exclusion, although there is a slightly positive trend in the level of financial inclusion in Nigeria. From the country's financial landscape, it seems that financial inclusion is still far from being inclusive. This can be understood since the data on financial inclusion's level is broken down to reflect the actual picture of the gains based on a geo-political basis; where the exclusion rate of the Northeastern and Northwestern parts of Nigeria are said to be at 60% (EFInA 2019, 2021).

On July 21<sup>st</sup>, 2020, CBN in furtherance of its bid to promote financial inclusion had introduced eleven intervention schemes to cater for the non-interest (Islamic) finance public.<sup>3</sup> The objectives of the intervention, among others, were to generate employment to empower the youth population, spur the development of the country's agricultural development and other non-oil sectors of the economy (Endurance 2021). CBN mandated the participating financial institutions to provide financing for beneficiaries for terms ranging from 5 to 9 years at single digit pricing. Other unique opportunities provided by the intervention scheme are the support for both start-up and their expansion of businesses, financing in both cash and kind, affordable security or collateral (0% for youth related interventions).

From a contractual perspective, the nominating contracts which these interventions could be accessed are basically exchange-based contracts that depend on either sale or lease contracts which consequently creating debt obligations. This situation is criticized as a failure on the Islamic banks where Islamic finance should be able to provide viable alternatives to conventional finance for entrepreneurial development. Islamic banks in Nigeria should be allowed to progress further with their product innovations that can be matched with the needs of the society. Moreover, the reality of risk-sharing should be more picturesque from Islamic finance's activities or offerings as the core of Islamic financing (Kayed 2012). Some scholars had surmised that financial inclusion is lower in Muslim majority societies as compared to others due

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<sup>3</sup> These schemes include; Accelerated Agricultural Development Scheme (AADS), Intervention in the Textile Sector (ITS), Agri-business, Small And Medium Enterprises Investment Scheme (AGSMEIS), Micro, Small and Medium Enterprises Development Fund (MSMEDF), Non-Oil Export Stimulation Facility (ESF), Anchor Borrowers Program, Real Sector Support Facility (RSSF) through CRR, Credit Support for the Healthcare Sector, Creative Industry Financing Initiative, Commercial Agriculture Credit Scheme (CACS) and Targeted Credit Facility (TCF).

to their inaccessibility to Islamic finance services, even with the recent growth of Islamic financial services. Their arguments lead to a fact where may be that there is a nexus between investment financing and accessing of credits, especially among Muslim majority societies. Thus, the regulators are urged to explore Islamic equity-based financing instruments to improve access to finance (Naceur et al. 2015). This is in view of the fact that the equity-based Islamic financing contracts do not create debt obligations per se, but are more conducive towards entrepreneurial development. Moreover, financing cost associated with debt financing are eschewed. Furthermore, Adegbite et al. (2021) articulated that there is about 78% of rural smallholder farmers in Nigeria are financially excluded. They observed that by owning a formal account is significantly different from being financially adequate. In order to achieve sustainable financial inclusion in the society, it is also important to increase financial inclusion among rural smallholder farmers by strengthening their financial capability, participation and well-being, and not solely focus on formal account owners.

## 5 Conclusion

This study sets an exploratory sail to examine the numerous strategies and programmes put in place by the CBN towards stimulating financial inclusion, especially through the Islamic finance's offerings. In furtherance of this qualitative study, much reliance was placed on the secondary data generated from official publications, working papers, websites, and online resources of CBN, in addition to journal articles, e-books, conference proceedings, etc., where their contents were analyzed.

The study found that although there were numerous strategies, programmes and interventions to stimulate financial inclusion through the non-interest (Islamic) finance. However, there are still more needed to be done, especially in the area of promoting Islamic equity-based financing in their product innovations for sake of achieving effective financial inclusion of the targeted beneficiaries, i.e., Muslim majorities societies in Nigeria.

The crucial implication of this study for policymakers, regulators and stakeholders is the urgent need to recalibrate the extent of strategies and intervention programmes which enable them to really address the actual need of their targeted beneficiaries. Moreover, Islamic banks should be allowed to grow and innovate in their offerings and product innovations.

The study recommends the adoption and possible mainstreaming Islamic equity-based financing instruments, i.e., *Mudarabah and Musharakah*, into the main financial products and services. This is important to complement the numerous laudable steps of the regulators at pursuing effective financial services which have become necessary due to the rapid shrinking of public expenditure and to navigate the negative economic impacts of COVID-19 that has exacerbated the predicament of the financially excluded around the globe.

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# Islamic Estate Planning (IEP) in Malaysia: The Opportunities for Islamic Banks



Rusni Hassan and Nurul 'Iffah M. A. Zaaba

**Abstract** Islamic Estate Planning (IEP) is an important task that Muslims need to participate to make sure individuals that will be left behind are taken care of. Despite increasing literature on the importance of this planning in Malaysia, there is a lack of study for the role of Islamic banks in this area. This study examines the IEP products that are available in Malaysian Islamic banking industry. It is observed that there are a lot of opportunities for the Islamic banks to offer IEP related products and services. Consequently, this study suggests further improvements for the Islamic banks in enhancing their offering of IEP products and services.

**Keywords** Islamic banks · Islamic Estate Planning · Malaysia · Products and services

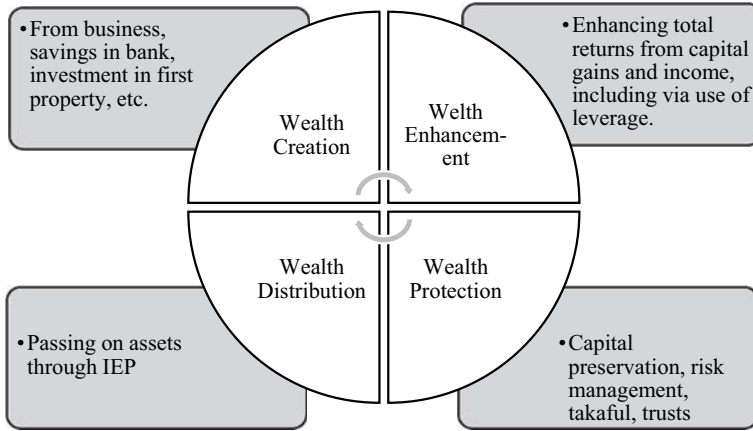
## 1 Introduction

Islamic estate planning (IEP), a subset of Islamic wealth management (IWM) is essential in the life of a Muslim. It is a planning done to avoid assets from being frozen and to ensure it is transferred to intended party, i.e., the loved ones, eligible heirs or to be given for charitable purposes. IWM consists of four (4) components that are wealth creation, wealth enhancement, wealth protection and wealth distribution as depicted in Fig. 1. IEP, being the last part of the IWM is often neglected by Muslim, particularly in Malaysia (Bouteraa 2019; Abdul Rahman and Hassan 2020).

Shariah recognizes wealth as a fundamental element for one's life for a good and balanced life. As a servant of Allah that has been entrusted to manage wealth in this world, one must pay attention to wealth cycle starting from wealth creation until the final act of wealth distribution, since these will eventually relate to either reward or punishment in the hereafter. Specifically, IEP which is part of the IWM cycle is aligned with Maqasid Shariah that supports the basic needs of Muslims to build wealth, to protect the poor and to provide for one's family members. In

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R. Hassan (✉) · N. 'I. M. A. Zaaba  
Chairman of Shariah Committee, Hong Leong Islamic Bank Malaysia/IUM Institute of Islamic Banking and Finance, International Islamic University Malaysia, Kuala Lumpur, Malaysia  
e-mail: [hirusni@iiu.edu.my](mailto:hirusni@iiu.edu.my)



**Fig. 1** Administration and the distribution of a Muslim deceased’s estates. *Source* Authors own

Islam, the wealth holder can enjoy rightfully acquired and accumulated wealth while simultaneously manage the wealth as a trust from the Creator to improve the lives of many others (Ariff et al. 2017). Through IEP, one can planned to distribute his wealth to dependents, non-dependents, special needs and the society at large (Rashid et al. 2013).

In Malaysia, the history of official administration of IEP started back in the year 1921 after the establishment of the Department of Public Trustee and Official Administrator. It is now known as Amanah Raya Berhad (ARB) after its corporatization in 1995. Amanah Raya Berhad is Malaysia’s premier trustee company wholly owned by the Government.

However, Muslim in Malaysia did not actively participate in IEP. This is because this is a matter that will be executed after one has passed away. They let faraid system to distribute their estates according to the proportion to the eligible heir(s). Being said that faraid is not the only tools that can distribute estate in IEP.

The major concern in this study is participation of Islamic banks in IEP particularly in Malaysia since these institutions play an important role in the economy. The role of Islamic banks in offering IEP products have not been comprehensively discussed. Most of the research on IEP focuses on the role of hibah, hibah trust, wasiat, the role of ARB and the issues and challenges occurred.

The statistics of the frozen assets shows the increasing number of these assets comprising homes, land and cash. Table 1 provides the details of the frozen assets from 2004 to 2020 (Shafie et al. 2016; Metro 2020; Utusan 2021).

Muslims are losing out on potential benefits or utilities that they could derive from such assets. For entrepreneurs, both land and capital are considered factors of production (inputs), which are among the vital ingredients needed in the process of producing goods and services (outputs), and ultimately generate economic profits for the business.

**Table 1** Frozen assets in Malaysia (2004–2020)

| Year      | Value (RM billion) |
|-----------|--------------------|
| 2004      | 15                 |
| 2006      | 38                 |
| 2007–2009 | 40                 |
| 2010      | 41                 |
| 2011      | 42                 |
| 2012      | 52                 |
| 2013–2015 | 60                 |
| 2020      | 70                 |
| 2021      | 90                 |

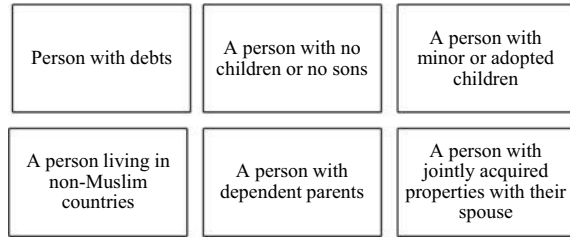
As for non-business people, to have quick and easy access to assets is a blessing as they can utilise and exploit them (whether in the form of real assets or financial assets) to fulfil their daily needs. Like idle wakaf land, unclaimed and frozen assets are counterproductive to their original function, either as factors of production or even for consumption purposes. Not only that, but nonfunctional of these assets is also a form of obvious wastage of resources (*tabzir*), which is condemned by Islam.

Considering the importance of IEP and the increasing number of frozen assets, this research explores the opportunities and potentials for Islamic banks in offering IEP products. Having the capacity to widely reach the community particularly in the urban city, Islamic banks can play the role to promote IEP especially among Muslims.

## 2 The Concept of IEP

IEP is best defined as planning by a Muslim during his life to distribute and dispose of his wealth upon his death (Lahsana 2016). Therefore, it can be understood that estate planning is an effort made by the individual to distribute his estate to dedicated person or purpose while being a good health status. Otherwise, this would affect the life of their loved ones if there is no appropriate arrangement done during his life. In other words, he provides a better environment for the personal and financial affairs of their family member and vice versa.

**Fig. 2** Potential prospects of IEP products. *Source* Authors' own



It is always misunderstood that IEP is a planning by someone who has estate(s) or wealth. The potential prospects are actually wider than that. They can be segregated into a few groups (Fig. 2):

The importance of IEP to each category of people mentioned above is explained below:

- 1) Person with debts: the legal heirs should know that estate distribution of their loved ones can only be made after all the debts are settled according to wasiat and faraid system.
- 2) A person with no children or no sons: if a person desires to include their relatives, or close friends or even the poor and the needy to receive his estates, a proper estate planning should be in place.
- 3) A person with minor or adopted children: to safeguard the welfare of family members who left behind especially his young children, a person may appoint someone as trustee. For an adopted child, a bequest must explicitly be made since the child is not included under faraid system.
- 4) A person living in non-Muslim countries: individual living in those countries must prepare specific documentation of bequest for the arrangement of his estate distribution.
- 5) A person with dependent parents: estate planning would ensure the welfare of parents who are financially reliant on him after his death.
- 6) A person with jointly acquired properties with their spouse: the legal heirs or his children might not know which estates are jointly acquired properties. By planning proper estate planning, future disputes can be avoided.

### 3 Research Methodology

This research adopts library study method to achieve the research objectives. The library research is conducted on the available literatures on IEP. The references are made to the articles in journals, books, websites and other reading materials.

## 4 Discussion and Findings

### 4.1 *The Players in IEP Industry in Malaysia*

At this moment, the industry players are divided into two. The first type of players is a licensed trustee company that provide all-inclusive services of IEP. On the other side, there are some of the institutions that are not licensed trustee but provide IEP consultation services while engaging with respective external trustee to work out the mandatory trust practices (Abdul Rahman and Hassan 2020).

In Malaysia, the first institution that were established to support the industry is Amanah Raya Berhad (ARB). With 90 years of experience, ARB has been the pioneer in the industry while being Malaysia's premier trustee company wholly owned by the government of Malaysia.

Association of Trust Companies, Malaysia (ATCM) is the institution responsible for facilitating the interests of Trust Companies. All trustee companies need to register as a member of ATCM. However, it is important to note that not all IEP institutions need to be registered under Trust Companies Act 1949 and becoming a trustee company. Abdul Rahman and Hassan (2020) As of now, there are nine (9) institutions that are registered with Association of Trust Companies, Malaysia (ATCM) while offering IEP products as in Table 2 as below:

The above-mentioned institutions are recognized as the main industry players in Malaysian IEP. On top of that, there are other entities who are promoting IEP products and services as an agent on behalf of the main players. There are various services that are offered by these institutions ranging from wasiat writing, wasiat custody to guardianship of assets.

### 4.2 *IEP Products Offered by Islamic Banks*

As listed by Abdul Rahman and Hassan (2020), there are two categories of IEP players. Some of them provide all-inclusive services of IEP because they are a trustee by operation. On the other side, there are some of the institutions only provide consultation services. In other words, Islamic banks are also included under the second category.

It is interesting to note that some of Islamic banks offered IEP products by being an agent to another third party or registered trustee. RHB Islamic Bank is the agent of Al-Salihin Trustee to offer wills; whilst BIMB and Hong Leong Islamic Bank are the IEP agent for Amanah Raya Berhad. Maybank Islamic, on the other hand, established their respective Trustee Companies which are the subsidiaries of the parent or group companies. The following table is the list of Islamic banks that are offering IEP products (Table 3).

**Table 2** Registered Trustees and IEP products

|                           | CIMB Islamic Trustee Berhad | Affin Hwang Capital Trustee Berhad | PB Trustee Berhad | RHB Trustees Berhad | Maybank Trustees Berhad | Amanah Raya Berhad | As-Salthin Trustee Berhad | Pacific Trustees Berhad | Rockwills Trustee Berhad |
|---------------------------|-----------------------------|------------------------------------|-------------------|---------------------|-------------------------|--------------------|---------------------------|-------------------------|--------------------------|
| IEP                       | ✓                           | ✓                                  | ✓                 | ✓                   | ✓                       | ✓                  | ✓                         | ✓                       |                          |
| Wasiat (Will)             | ✓                           | ✓                                  | ✓                 | ✓                   | ✓                       | ✓                  | ✓                         | ✓                       |                          |
| Wasiat Custody            | ✓                           | ✓                                  | ✓                 | ✓                   | ✓                       | ✓                  | ✓                         | ✓                       |                          |
| Administration of Estates | ✓                           | ✓                                  | ✓                 | ✓                   | ✓                       | ✓                  | ✓                         | ✓                       | ✓                        |
| Private Trust             | ✓                           | ✓                                  | ✓                 | ✓                   | ✓                       | ✓                  | ✓                         | ✓                       | ✓                        |
| Hibah                     | ✓                           | ✓                                  | ✓                 |                     | ✓                       | ✓                  | ✓                         | ✓                       |                          |
| Jointly Acquired Asset    |                             |                                    | ✓                 |                     | ✓                       |                    | ✓                         | ✓                       |                          |
| Guardianship of Assets    |                             |                                    | ✓                 |                     | ✓                       |                    | ✓                         | ✓                       |                          |

Source: Authors own with reference to [atcm.com.my](http://atcm.com.my) website

**Table 3** Islamic Banks and IEP products

| Islamic banks                  | Agent for                 | Products      | Mode         |
|--------------------------------|---------------------------|---------------|--------------|
| RHB Islamic Bank Berhad        | As-Salihin Trustee Berhad | Wills         | OTC          |
|                                | RHB Trustees Berhad       | Private Trust | OTC          |
| Bank Islam Malaysia Berhad     | Amanah Raya Berhad (ARB)  | Wills         | OTC          |
|                                |                           | Hibah         | OTC          |
| Hong Leong Islamic Bank Berhad | Amanah Raya Berhad (ARB)  | Wills         | OTC & Online |
| Maybank Islamic Bank           | Maybank Trustees Berhad   | Wills         | OTC          |
|                                |                           | Hibah         | OTC          |
|                                |                           | Private Trust | OTC          |
| CIMB Islamic Bank Berhad       | -                         | Wills         | OTC & Online |
| Ambank Islamic Berhad          | -                         | Wills         | OTC          |

*Source* Authors own (based on individual Islamic Banks' Product Disclosure Sheets and Websites)

## 5 Recommendation and Conclusion

In conclusion, Islamic banks have not taken the initiatives to offer more IEP products to the public. The major instruments that are offered by Islamic banks are hibah, wasiat/wills and trust. The immediate action that Islamic banks can do to alleviate the IEP products offerings is by incorporating IEP as one of the banks products and services. Since IEP relates to protection of wealth and people which is aligned to the maqasid Shariah which is also the ultimate objectives of the Islamic banks. Islamic banks have to incorporate IEP related services as part of their strategies and at the same time to resolve issues of administrative bureaucracy, the conversations with the related government bodies need to be initiated to ensure asymmetric information between all the related institutions.

Moreover, Islamic banks' digital operations need to be fortified rather than focusing to over-the-counter (OTC) services and the interesting product offerings package need to be developed for IEP customers. Not only these can attract the customers to IEP products, but also ensure expedite and seamless process for IEP customers.

There might be some unspoken challenges that Islamic Banks faced that need to be highlighted and solved so these two big industry can help each other to grow. Therefore, there is a potential and business opportunities for Islamic banks to grab in the near future.

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# Waqf Education Participation Among Employees' of Higher Learning Institutions: A Conceptual Framework



Mohd Nor Hakimin Yusoff , Mohd Rushdan Yaso, Zul Karami Che Musa, Siti Fariha Muhamad, Siti Afiqah Zainudin, Noorul Azwin Nasir, and Tahirah Abdullah

**Abstract** The role of Waqf in socio-economic development is becoming increasingly important. The success of a waqf scheme depends on the involvement of the public in making contributions. Therefore, this study will look at the role of waqf in the higher education sector where the factors that influence the involvement of HLI staff will be identified. Based on the TPB, four factors have been identified, namely attitude, subjective norms and perceived behavioral control that can influence the involvement of HLI staff. A new variable, OC, will be tested to see its effectiveness in this TPB model.

**Keywords** Waqf · Theory of planned behaviour · Organization commitment

## 1 Introduction

This study is to investigate variables that may influence the individuals' intention towards participating in waqf. Waqf is an endowment made by a Muslim intentionally for a specific objective such as religious, educational, or charity. A person who constitutes the waqf is known as Waqif. Waqf also refers to any property that prohibit the waqif to perform transaction, inheritance, donation and wills while maintaining good condition of the asset with intention to be closer to God (Sanep and Nur Diyana 2011).

Waqf education has been practised in Malaysia since the introduction of Islam in the Malay Archipelago. Pondok institutions are one of Malaysia's oldest Waqf educational holdings. The practice have various forms subject to the nature of asset donated by waqif. The properties were surrendered by the religious community. The institutions easily found in Kelantan, Terengganu, Kedah, Seberang Perai and others (Abd Latiff et al. 2006). In normal practices, the asset that commonly put under waqf were building, furniture, scholarships and learning materials. In current development, there are an increasing number of muslim involved in Waqf program.

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M. N. H. Yusoff (✉) · M. R. Yaso · Z. K. C. Musa · S. F. Muhamad · S. A. Zainudin · N. A. Nasir · T. Abdullah  
Universiti Malaysia Kelantan, Kota Bharu, Malaysia  
e-mail: [hakimin@umk.edu.my](mailto:hakimin@umk.edu.my)

It goes without saying, waqf played a significant role in education development in Malaysia. Considering the significant role of waqf, the government currently encourage Higher Learning Institutions to promote waqf as one of the instruments to raise fund to finance the operation. The initiative is aimed to reduce the government burden and introducing financially independence HLI. To reflect, in the year 2017, the government has cut almost 20% of HIL operating budgets. As a result of this decision, the government's financing for higher education fell to RM6.12 billion in 2017 from RM7.57 billion in 2016. The reduction is one of the steps being taken to address the country's financial deficit, which has been exacerbated by the declining economy. To address the issue of university budget shortages, the government will use a new funding system for public universities to stimulate more research. One of the tools is by introducing the waqf concepts.

The dependence of institutions of higher education against the government is too high. This prompted to a lack the initiative among public universities in our nation to find their own funds and prompt to a lack of financial resources. Troubled financial resources will prompt to numerous different issues, for example, poor facilities, limited manpower, less activity in the academic aspect of the growing expenses in addition to the budget constraints of the government is the biggest challenge to equip and enable institutions of higher education ecosystem. In this manner, each public university are urged to raise their own funds for the financing of infrastructure and education. The financial crisis can be overcome with Waqf education. The distribution of funds for program purposes such as academic excellence, operating costs and physical development ought to be given consideration in the management of waqf funds in institutions of higher education (Jaafar et al. 2012). Hence, each public university are urged to set up waqf support as one of the new initiatives that lead towards financial independence. What's more, it also can help students from the poor. There is no doubt, economic growth also give impact and increases the burden of tuition fees. Even though the education loans are available, despite paying back the loan affect difficulties to students. (Sunny 2007) states to finance the cost of education is increasingly expensive due to increased tuition fees for courses especially critical in the area of minds and technology. Since waqf is voluntarily types of program this study aimed to investigate the readiness to participate in Waqf among HI employees. This is because the success of the waqf program most depending on the voluntarily support by the employees. The readiness is reflected by intention which the measurement was exploited the theory of planned behavior. Based on the theory of planned behavior (TPB), this study has identify four independent variables to measure the employees intentions. Organisational commitment is a newly introduced variable added to this model aimed to examine its effect on the intention. TPB which was introduced by Ajzen (1991) explained a person's behaviour namely; Attitude, Subjective Norms (SN) and Perceived Behavioural Control (PBC). The theory was widely used to predict individual attitude and action.

## **2 Literature Review**

### ***2.1 The Concept of Waqf***

The Arabic word waqf means “to stop, contain, or maintain.” Waqf, in Islamic words, is a demonstration of holding some property and storing it for the benefit of a specific philanthropy that refuses to use or dispose of it for any reason other than the purpose (Kahf and Mohamed 2017). In Islamic law, Waqf is permissible, and it is a regulated practise based from the Quran and Hadith. Waqf generates a lot of money. It likewise assumes an imperative part in economic development by providing health facilities, education and worship place (Ab Rahman 2009).

### ***2.2 Intention to Participate in Waqf***

Intention is an important element to influence one’s action. Islam advocates that good intentions will be rewarded even if one is unable to do so for whatever reason. This is to show that how muslim are encourages to always have good intentions which its come from positive attitude. The previous research on intention to participate in waqf among potential waqf donor by Muhammad (2016) which is the purpose of the researcher’s study is to identify the relationship between individual donor’s socio-economic waqf (SEW) endowing intention and the person’s giving behaviour in the North West Zone (NWZ), Nigeria. The study found that there are positive correlates between intention to endow Socio-economic Waqf and attitude. The same result was found by Osman (2014) on intention to participate in cash waqf among young intellectual conducted in Malaysia. The study indicated that young intellectuals who have a positive attitude about the system are more likely to participate in cash waqf, and that attitude is substantially connected with cash waqf involvement.. However, the study on information systems (IS) personnel employed within several industries in New York and Boston found that there is negative correlation between information system personnel attitude and intention to quit.

On another marketing and business perspectives, consumer attitude is positively related to consumer behaviours (Ajzen and Fishbein 1975). In the context of participating in waqf, it is expected that a person’s attitude is positively influenced the intention to participate in waqf.

### ***2.3 Attitude***

Understanding was the main factor that influenced the university employees of the Waqf inclination and participation. Attitude played a significant role for a person to achieve in their life. (Ajzen 1991) defined attitude as a psychological propensity

resulting from a positive or negative judgement of a certain entity. In general, the more positive a person's attitude about an action is, the more likely that person will desire to engage in it. Furthermore, according to Eagly and Chaiken (1993), attitude is a psychological propensity that manifests itself in the appraisal of certain entities with varying degrees of favour or disfavour. This psychological tendency exists in every human in the form of evaluation, which encompasses all sorts and categories of evaluation, both overt and covert, as well as cognitive, emotional, and conative forms of evaluation.

Evidently, attitude is considered important in predicting and explaining human behaviour. (Ajzen 1991) A considerable link between attitude and intention has been demonstrated in numerous investigations (Alalwan et al. 2018; Shih and Fang 2004). A study by Shih and Fang (2004) in determine the individual's intention to adopt internet banking and actual use in Taiwan found that attitude is a significant determinant of behaviour intention. Attitude is proven to be one of the predictor for intention in a great number of previous studies. However, the were a limited number of studies exploited this variable in predicting intention which is highly related to religious belief. Thus, this study by using TPB exploited this variable to measure the relationship between attitude and intention to participate in waqf over the sample. Therefore, this study suggest that;

H1: There is a significant relationship between attitude and intention to participate in waqf among HIL employees.

## ***2.4 Subjective Norms***

Another sign of the Theory of Planned Behavior is subjective norm (TPB). (Ajzen and Fishbein 1975) created it, and it alludes to external and interpersonal influence. Subjective norm is defined by Ajzen (1991) as the perceived social pressure regardless of whether the conduct should be performed. This variable consists of two measures: normative belief, which refers to doing what other people want you to do, and motivation, which refers to agreeing to important referents (Keh et al. 2007). Across fields, the importance of subjective norms on behavioural intention has been discovered (Ajzen 1991). Therefore, this study suggest that;

H2: There is a significant relationship between subjective norms and intention to participate in waqf among HIL employees.

## ***2.5 Perceived Behavior Control***

According to Ajzen (1991) people's perception of the pleasure or difficulty of implementing the behavior of interest of perceived behavioral control. Basically, the more favorable the attitude and subjective norm regarding the behavior, and the greater the perceived behavioral control, the stronger should be the intention of the individual

to perform the behavior. In previous studies, the importance of the link between perceived behaviour control and intention was discovered (Yusoff et al. 2021). (Yusoff et al. 2021) for example, discovered that perceived behavioural control has a considerable impact on the intention to use e-commerce. Subsequently, it is expected to conclude that the effects seen noteworthy viewed of perceived behavioural control to Waqf participation.

Perceived behaviour control viewed as a perception about the ability to perform a certain behaviour stated by Turner et al. (2010). There are variety of behaviour that can be analyzed which were the attitude and the other characters that would be defined as the behaviour or signs of certain people. For example, awareness towards beneficial of Waqf that might facilitate the performance of behaviour and lead to participate in that. Actual behaviour refers to the behaviour of real if the user to carry out their intention behaviour. Based on the existing findings, it is expected that the intention to participate in Waqf is positively related to their behaviour. Therefore, this study suggest that;

H3: There is a significant relationship between behavioural control and intention to participate in waqf among HIL employees.

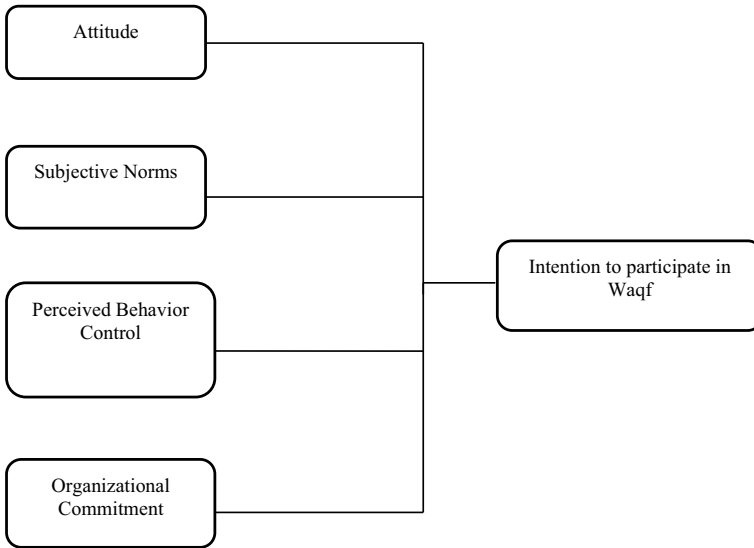
## ***2.6 Organizational Commitment***

The topic of organisational commitment (OC) had sparked a lot of interest among social scientists in recent years. Some individual tend to give the high commitment to get the reward from the organization or vice versa. The commitment of employee has been found to be associated with the critical workplace behavior. According to Hendrix et al. (2020) OC is related to positive feedback such as reduced absenteeism, stress and work family conflict, lateness and turnover intentions and rise in job satisfaction. Therefore, this study suggest that;

H4: There is a significant relationship between organisational commitment and intention to participate in waqf among HIL employees.

## **3 Proposed Conceptual Framework**

Based on the literature review, a conceptual framework to study the relationship between the attitude, subjective norms, perceived behavioral control and organisational commitment toward intention to participate in Waqf among the employees of HIL was developed as shown below (Fig. 1).



**Fig. 1** Conceptual framework of intention to participate in Waqf among HIL employees

## 4 Conclusion

The purpose for this research was to identify the factors that impacting individuals' intention to contribute in waqf education in particular. This review has observationally tested four factors which are attitude, subjective norm, perceived behavioural control and organisational commitment. This review predicted that that attitude, subjective norms, perceived behavioural control and organisational commitment have significant impact on intention to contribute in waqf education. This proposed framework also to introduce organisational commitment as a new variable adding to existing TPB model. The proposed framework also to investigate the role of OC in influencing intention.

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# **Digitalization of Economy and Public Administration**



# National Models of Digitalization of Economy of the USA, the UK and the EU-Countries



Nadiia P. Reznik , Kateryna A. Alekseieva , Anatolii A. Ostapchuk , Vitalii V. Lutsiak , and Vadym M. Kondratyuk

**Abstract** The article is dedicated to development of the concept of digitalization of economies of developed countries in current conditions in terms of the changing technological orders. Such countries as the USA, the UK and the countries of the EU were chosen for the research on the basis of some common features of development, in particular the level and the way of development, quality of life of people, mentality. The national models of the USA and the UK have been characterized and overall characteristic to the national economies of the EU-countries has been given. The level of digitalization of the economies of the chosen countries has been estimated. It has been shown that the mentioned countries have become the world leaders in the process of digitalization thanks to their commitment to the scientific and technological progress integrated into culture and mentality of people and thanks to the well-thought government policies. In terms of pandemic that has recently occurred in the world the digitalization has transformed into the tool of providing the economic development. The restrictions in movement of people have made it possible to communicate and to provide management of all spheres of economy and the business running via digital technologies. The production relations have

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N. P. Reznik (✉)

Department of Management of Organization Named After Y.S. Zavadskiy, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine

e-mail: [nadya-reznik@ukr.net](mailto:nadya-reznik@ukr.net)

K. A. Alekseieva

Production and Investment Management Department, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine

e-mail: [katerinaalex@ukr.net](mailto:katerinaalex@ukr.net)

A. A. Ostapchuk · V. M. Kondratyuk

National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine

e-mail: [aostapchuk@ukr.net](mailto:aostapchuk@ukr.net)

V. M. Kondratyuk

e-mail: [vadkondratyuk@ukr.net](mailto:vadkondratyuk@ukr.net)

V. V. Lutsiak

Department of Administrative Management and Foreign Economic Activities, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine

e-mail: [lutsiakvv@nubip.edu.ua](mailto:lutsiakvv@nubip.edu.ua)

obtained the new forms. The developed countries of the world showed themselves to be ready to meet the challenges thanks to the digital technologies widespread. The new technological order is being formed in current conditions where the digital forms of providing economic development become crucial.

**Keywords** Digitalization · Developed countries · Developing countries · Gap in development · Management · National models · Production relations · Technological order

## 1 Introduction

Constructing a digital economy has become a new challenge for all the countries of the world. It has become obvious that the countries able to create and implement the digital technologies are the world leaders whereas the countries which cannot do that quickly remain behind. It should be mentioned that all the countries (developed and developing) are trying to build digital economy in their own way observing the national economic conditions and the national mentality. It means that there are different national models of digital economy being formed in the world. Certainly there are substantial differences in the digital economies of different countries because the prerequisites and conditions in the countries are also different. The way of constructing the digital economy in the European countries and the USA has its specific peculiarities.

The article contains a study of digitalization of economy of the developed countries of the world as a new coil in their development. Digital technologies penetrate in lives of people, in business, changing the mentality, the labor market, the way business doing and improving the quality of life. However, the gap among the countries able to create and provide technologies and the ones which cannot do that is growing from day to day. There are countries which are still under influence of their past “socialistic” development and countries which are considered to be “developing”. Thanks to implementing the strategy of digitalization it is possible to create positive effects in order to balance the development of different countries.

As for the developed countries among which there are first of all such countries of the world as the USA, the UK and countries of the EU they are all being under the process of digitalization and this process is happening extremely fast. They have all already declared themselves as the ones which are aiming at becoming the world leaders in the process. The national models of economy of these countries are marked with fast pace of providing digitalization in all spheres of economy.

It should be mentioned that all these countries have always been committed to providing the scientific and technological progress. Their national models of economies have been marked with high levels of involvement of the technologies and innovations for a long time. Historically for instance the UK was the world leader while the industrial revolution was the mainstream of the world development. This country possesses well developed educational systems with the world leading universities and technologies have become a part of everyday lives of people. As for the USA it is the country where the technologies are being created. Thanks to the

well-thought government policy and implementing of different supporting programs the USA possesses places of concentration of high-tech companies in the field of information and communication. This makes the USA one of the world leaders in digitalization. The situation with the countries-partners of the EU is a different a little. The EU unites countries with different history and the way of development. Some of them are adapting to the current conditions in a quick way whereas the others cannot cope with the pace of digitalization dictated by the world leaders. That is why there are developing unequally and there is the gap in development even inside the EU.

In terms of the pandemic that has recently occurred in the world the developed countries have been ready to meet the new challenges thanks to their digital development. The new limitations implicated as the quarantine measures have pushed the digitalization of all the spheres even faster than before. The new economic relations are being quickly formed with accent on the distant communication. It has become possible to speak about the new technological order that is coming instead of the previous one. The approaches to management of different spheres of economy change towards the accent on the final results of the workers' achievements not on the process organization and controlling.

The following issues are considered in our work:

- The developed and developing countries are defined and observed in terms of their readiness to digitalization providing\$
- The national models of some developed countries are analyzed and compared;
- The pandemic of coronavirus is shown as a stimulus for the fostering digitalization;
- The readiness for the digitalization spread as the main trend in conditions of the changing technological orders is well-grounded as the main requirement for the development providing in current conditions.

## 2 Literature Review

The scientific studies of many world and Ukrainian scientists are dedicated to development of the concept of digital economy. These are the scientific works of Alekseiya (2021), Byrne (2017), Hellier (2016), Kingston (2006), Kozhemiakina (2018), Negroponte (1995), Ostapchuk (2019), Polozhihina (2018) Reznik (2018). The researchers focused their attention of finding the basic theoretical well grounding of forming the digital economy in current conditions.

The basis of the dialectical concept of development is presented by the laws of unity and the struggle of opposites and the transition of quantitative changes into qualitative ones. These laws reflect the source, nature, nature of change, and the progressiveness of the driving forces behind development. In current conditions we can observe a new coil in development of the world economy that has got a form of digitalizing of all spheres of peoples' lives. This can be seen as a new stage of informational revolution that followed industrial revolution and stated new challenges for all countries of the world.

In the beginning of the previous century the concept of noosphere was firstly presented by Vernadsky, V. (<https://buklib.net/books/33729/>) which became a general

vision of the possible future model of economy. *Schumpeter, J.* (Kingston 2006) introduced the distinction between economic growth and economic development in the economic science. Economic growth is the increase in production and consumption of the same goods and services over time. Economic development is the appearance of something new, unknown before or in other words innovation. The scholars of the XXth century tried to analyze the quick changes in the development of the countries and to substantiate the reasons for growing gap in development among different countries of the world. For instance in the works of *Solow, R.* economic growth is studied in relations to such factors as labor, capital and technologies (Solow's Model of Growth (With diagram) 2021). In the middle of 90-s of the previous century *Negroponce, N.* (1995) in the USA was the first to present determination to the word "digitalization" that marked the beginning of the digital age all over the world (Negroponte 1995).

Within the last decade the quantity of publications on the topic of "digital economy" has become among the highly discussed by representatives of science, business and politics. The concept itself is seen as a form of providing substantial development and practical implementation of the "economy for human" because it becomes possible to reach simultaneously economic, ecological and social goals of development.

In Ukraine the scholars are trying to work out theoretically the concrete measures to provide the digitalization of economy practically. For instance, in the works of *Ostapchuk A., Alekseieva K., Artiukh T., Zorgach A., Zaburanna L.* (2019) the agrarian digitalization is studied in its connection to the human development (Ostapchuk et al. 2019). The labor market in the real sector of the economy of Ukraine in current conditions is researched by *Kozhemiakina et al.* (2018). The pandemic of the coronavirus that has recently occurred in the world has fostered the fast spread of the digital technologies all over the world. The new distant forms of business running have become widely spread. It has become even possible to speak about the change of technological orders in current conditions. The research devoted to the change of technological orders caused by the pandemic is presented by *Alekseieva* (2021).

Taking into consideration the value of the research already carried out it is necessary to stress the attention of the scholars to the need in research connected to constructing the national models of digital economy with peculiarities essential for different countries. That is why the topic of the current research was considered to be relevant and actual in order to characterize specific features of the economies of some leading countries of the western world.

The most important tasks of the article are first of all choosing the countries for research on the basis of some common features in particular the level of development and the common way of development of the chosen countries, the level and quality of life of people and some common traits in mentality. Secondly it is characterizing the national models of providing digitalization and constructing the digital economy in the chosen countries. Thirdly it is estimating of the level of digitalization of the economies of the chosen countries.

### 3 Purpose of the Study

The purpose of the article is to study the digitalization of economy of the developed countries in terms of changing technological orders and to substantiate scientific and practical recommendations for constructing the digital economy in the developing countries in terms of the changing of technological orders.

### 4 Methodology

To fulfill the stated tasks of the studying a number of well-known scientific methods and techniques have been used. In particular:

- using of the *method of induction and deduction* was applied to collect information on the theoretical background of the national peculiarities of different countries to show that the developed countries of the world have got much in common;
- the *method of analysis and synthesis* was used to give the theoretical substantiation of the differences in development of different countries of the world and the consequent forming of the national models of economies.
- the *statistical method* was used to demonstrate the figures of development of the countries researched in the article;
- using *the method of constructing schemes* made it possible to present visual scheme of the research showing the peculiarities of the national models of digital economies;
- *historical method* was implemented in order to analyze the national prerequisites for digital development in particular to show that in the UK commitment to the technological progress is not a new thing but a part of mentality and culture.
- *the method of comparison* has been used to compare the developed and developing countries in the process of constructing the digital economy in current conditions.
- the *method of abstracting* was used to neglect some specific details of the development of the countries in order to carry out the research.
- using the *method of logical conclusions* made it possible to make common conclusions on the development of the chosen countries.

### 5 Findings and Discussion

The level of digitalization of economy has become a trend and a main factor that determines the political and economic leadership of the countries of the world. The process of digitalization can be considered a new stage in development of countries as a whole. From the theoretical point of view, the concept of digitalization is a logical consequence of development of human oriented concepts. The “technological race” of the countries of the world has taken different forms in its development.

The “military race” between the USA, the West European countries, Japan and the countries of the so called “Warsaw agreement” ended at victory of the first ones thanks to their orientation not only at progress of military industries but also at development of the human oriented technologies.

Currently we can observe in global measures countries which can be seen as developed and the ones which are developing. The second ones are becoming more and more dependent on the first ones and the gap between them continues growing.

Providing of the strategy of digitalization of economy can bring many positive effects including declining the level of dependency of the developing countries on the developed ones. Thanks to digitalization of all sectors and branches of economy it is possible to turn the economy towards the innovative development so that the developing countries will be able to catch up with the developed countries and the gap between them will be shortening. The economic growth in such conditions will be provided intensively basing on the technological development. Nowadays the developing countries frequently provide their economic growth due to the resources maintenance that does not correspond to the requirements of the sustainable development (Fig. 1).

As for the developed countries providing of digitalization at all levels of economy can lead to the new coil in development that can find its reflection in the prolongation of the life duration of people, improving quality of their lives, implementing mechanisms of environmental protection, i.e. doing everything to provide the sustainable development from now on (Fig. 2).

There are different national models of digital economy. There are countries which can be considered pioneers in implementing digitalization and the ones which are trying “to catch and copy” the technologies already implemented somewhere as soon as possible. There are also countries which are still behind the progress and the retardation becomes even more difficult to overcome than it used to be. In year 2015 digital development programs of economies were declared in countries of all levels of income. Among them there were Germany, the United States, the United Kingdom, countries-partners of the EU (Byrne 2017). After that the strategy of digitalization was considered to be one of the most progressive ways of development and quantity of countries aiming to implement it started growing. Despite the fact that each of the adopted programs (or strategies) in different countries remained marked by their



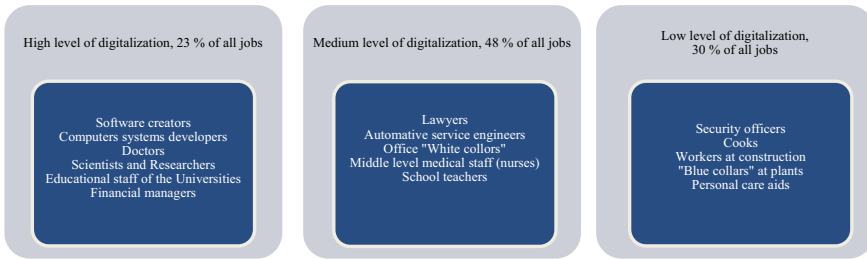
**Fig. 1** Positive effects of digitalization for the developing countries. *Source* developed by the authors



**Fig. 2** Positive effects of digitalization for the developed countries. *Source* developed by the authors

own specificities they all had in common the main aim of solving national problems through development the digital technologies in different spheres of economy. This fact determined the creation and development of national digital models of economies with peculiarities.

The United States of America has remained one of the leaders in implementing digital technologies since the beginning of the previous century. The economic progress of the country has been largely determined by providing innovations into consumer oriented industry whereas the military, space technologies have been also paid much attention to. For instance, the IBM Company created in 1924 has become among the most recognized leaders in the sphere of innovations. In the middle of the 1960s a place of concentration of American high-tech companies in the field of information and communication (so called Silicon Valley) started its development. It caused a push for the private business to implement human oriented innovations into their production and final products. Such technological “giants” as Intel, Microsoft, Apple, Google, Facebook and others emerged in the second half of the previous century and in the beginning of the current century and stimulated the technological breakeven of the country. It should be admitted that the wide spread of the technologies was substantially supported by different Government programs. The Stevenson-Wydler’s Technology Innovation Act was adopted in 1980 (Stevenson-Wydler Technology Innovation Act of 1980 2021). The Act required each federal laboratory to set up an office to identify commercially valuable technologies and their subsequent transfer to the private sector. In the same year the Bay-Dole Act was adopted that let the Universities to earn money selling the results of their research, i.e. it was the start of commercializing the results of scientific research done in the educational establishments (Bay-Dole Act 2021). Simultaneously there were different forms of stimulating of the small innovative business in the USA which included tax benefits for innovation activities and research. Since the 90-s of the previous century the USA took the initiative in the development of the information technologies. The Government support of innovative development found its reflection in such important steps as stimulating of Internet spread all over the country, implementing special programs concerning assistance in possessing the IT skills by employees, penetrating of technologies into educational process at all levels.



**Fig. 3** Digitalization levels by some selected occupations in the USA in 2016. *Source* developed by authors on the basis of Muro et al. (2017)

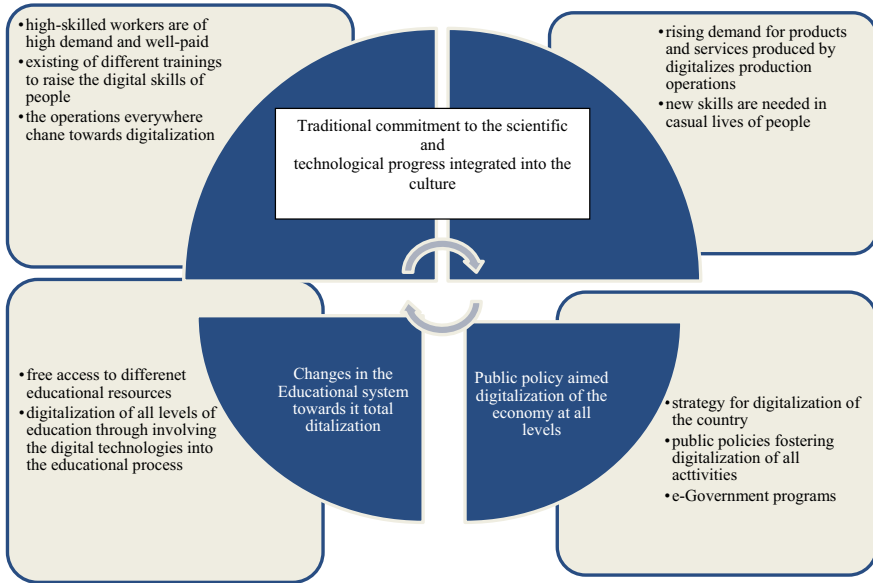
Recently the “*époque of digitalization*” has started in the USA. The diffusion of digital technologies into almost all spheres of industry and casual lives of people has become remarkable. According to the research already in year 2016 the most part of the jobs to obtain in the USA involved the digital skills as necessary ones. These were jobs of all levels from medical doctors and financial managers of big corporations to the workers, drivers and nurses (Fig. 3). For instance in year 2002 about 56% of different jobs involved low digital skills and only 5% of the jobs involved high digital skills in the USA. But already in year 2016 the necessity in high digital skills reached 23% whereas low digital skills were then required only by 30% of all jobs. This dynamic is essential in understanding the scopes and velocity of widespread of the digital technologies in the American economy (Muro et al. 2017).

One of the mostly digitalized economies in the world is the economy of the Great Britain. Having survived the world economic crisis in year 2008 this country activated development of its innovation sector of economy by all means. Of course the country possessed all needed prerequisites to do that in particular it already had the best educational establishments in the world, markets of venture capital and well developed legislative basis for implying of innovations. It should be mentioned that the British economy has traditionally been a world leader in technological development. It was the Great Britain that stimulated the industrial revolution and became among the most powerful countries in the world in the steam age, and it was the Great Britain which became a world leader again in constructing the first railways (Fig. 4).

Presently the digital technology sectors in the UK are rising 32% faster than businesses in other spheres (Hellier 2016). The digital economy provides about 1,6 million jobs and the most part of them creates highly paid opportunities, i.e. the employees involved into the digital jobs are paid 40% more in average in comparison to the same jobs in the non-digital sectors of economy. Since 2015 The Great Britain has witnessed the real rising in production of goods with high added value and consequently the export of such goods has been also growing fast (Byrne 2017).

Existing digital clusters Reading, Bracknell, Bristol, Bath, Manchester, Birmingham are being actively developed whereas there are new digital clusters Southampton, Cornwall and Dundee emerging in the UK. The “core” digital sectors





**Fig. 4** The basic components of the national model of digitalization of the economy of the UK. \* *Source* created by authors

of the UK economy are developing fast and stimulate consequent development of technologies creating new jobs but there are also new digital sectors emerging simultaneously such as EdTech, FinTech and HealthTech where the UK has already become a pioneer (UK digital strategy 2021).

As a matter of fact, the UK has officially declared the aim of becoming a world leader in digital technologies. Constructing of digital economy is considered as fulfilling of such tasks as building of the world-class digital infrastructure; providing everyone with the necessary digital skills; creating the best conditions in the world for start-ups and digital business; assisting every British business in making it digital; creating the safest in the world places to live and work online; maintaining the role of the world a leader in serving its citizens online; increasing opportunities to use data in the economy and increase public trust in their use. The citizens who lack digital skills will be provided free training by the British government whereas powerful private sector organizations such as Google, Lloyds Banking Group, Barclays will be involved into adult and children education (Polozhikhina 2018).

In the countries of the European Union the course towards digitalization of all countries included into the Union was officially declared in 2010 when the Digital Agenda for Europe was adopted. The main goals stated in the Agenda were to support economic growth in Europe, providing assistance to citizens and enterprises as well as obtaining all possible bonuses from digital technologies. In particular, the stress was put on the necessity to provide sustainable development in all European countries and to fulfill social goals by creating a common digital market based on high-speed

and ultra-fast Internet and compatible applications. The Digital Agenda was the first of seven leading EU initiatives in the frames of the strategy “Europe 2020”. Subsequently the appropriate plans were adjusted. In year 2015 Digital Single Market Strategy for Europe was adopted. Its goal was catching up with the US, Japan and South Korea in the Internet economy. To do that it was offered to expand access for digital goods and services, provide better living conditions and the expansion of digital networks and services, as well as the rising digitization of the economy. In 2016 the European Commission Investment Plan was adopted that focused on removing digital barriers across the EU. The main directions for investments to provide were determined as stimulating of development of the Public–Private Partnerships in the digital area in particular stimulating of research in different branches of economy, support of all EU countries in providing the public services via Internet, standardization of requirements for producing digital devices in order to provide their total correspondence, creating of European cloud infrastructure for data saving, development of national digital hubs of countries (Polozhikhina 2018).

Presently national economic models of different countries-partners of the EU are marked with fast development of digital technologies. Digital technologies are considered to be the ones to make the EU countries closer and to balance their development. It is expected that the elimination of national markets and the creation of Single European Market will give new jobs and additional economic growth. However, it is indicated that the use of digital technologies in Europe is distributed unevenly among different countries, companies and individuals.

According to data of the Digital Economy and Society Index (DESI) in year 2019 there was inequality among the EU countries remained. DESI is a composite index of six indicators of performance of digitalization of national models of economies of the EU members. The first indicator in DESI is *connectivity*. It estimates infrastructure development that is needed for providing digitalization. The second dimension is *human capital and possessing of digital skills* by people of the country. This indicator plays crucial role and determines a lot the whole process of digitalization. *Use of the internet services* by citizens is the third component of the DESI. It means not only the spread of access to the world web among population but also its consumption, i.e. using of online banking, shopping, video calls etc. *Integration of Digital Technology by business* measures the level of involvement of the digital technologies into business and the spread of e-commerce. The level of digitalization of public services is evaluated by the *Digital Public Services Dimension*. Here attention is paid to focusing on e-Government and e-Health. Public administration can become more effective and closer to citizens thanks to digitalization. The last dimension of the DESI is *Research and Development ICT* that is connected to carrying out analysis on the trends in the ICT Sector and R&D. As a matter of fact, all the dimensions which are the components of the DESI show the level of digital development of countries from different points of view (The Digital Economy and Society Index (DESI) Shaping Europe’s digital future 2019).

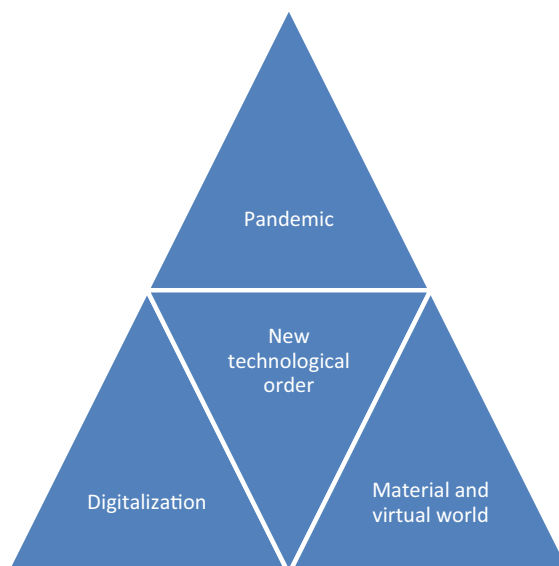
Such countries as Finland and Sweden reached the primer positions in the rating having become the world leaders in the process of constructing digital economy. For instance, Belgium and Germany took the middle positions and showed stable

rising of the share of digitalized sectors of economy. Comparatively high positions were reached by Lithuania despite its “socialistic” past. However, some countries of the EU remained behind their partners and need improvements to compete in new conditions.

It should be mentioned that the pandemic of coronavirus that has recently occurred in the world has stated the new unexpected challenges for both developed and developing countries (Alekseieva et al. 2021). Lockdowns together with the government measures prohibiting public events and limiting the movements of people all around the world due to the fast spread of the dangerous virus have transformed the digital technologies into unique tool of business running, events’ organizing and even communication among people. The digital technologies helped to survive in conditions of quarantine restrictions and partly prevented from huge economic losses. It has become possible to speak about coming of the new technological order where the digital technologies turn into the main factor of production. Certainly not all countries were ready to accept the challenges. As for the developed countries of the EU, the UK and the USA, the digitalization has obtained the new push to its development. The material and virtual world have been integrating to provide the economic development based on digital technologies (Fig. 5).

As a matter of fact, the pandemic of the new virus has played the role of some “black swan” (Taleb 2008) having caused the revolutionary changes in the world economy, in particular, in the economy of developed countries. The crucial technological changes have made it possible to control and to manage the material world (business, production, education, government etc.) via the digital technologies (the virtual world). It became possible only because the developed countries have been

**Fig. 5** Forming of the new technological order pushed by the pandemic. *Source* created by authors on the basis of (Alekseieva et al. 2021)



already ready to meet the challenges and the level of their development is appropriate. In terms of the new technological order the production relations in the developed countries are built preliminary on the digital technologies and the nano technologies sector is possessing the place of the main industry, the “white collars” (the office workers) can now work distantly and the attitude to the working time changes drastically, the approaches to management and business running also change towards the final results controlling not the process controlling as it was accustomed before.

The problem with developing countries remains unsolved in such conditions. If they do not manage to move to the digital development the gap between them and the developed countries able to implement the digital technologies will continue growing because even the production relations are moving to the new level.

## 6 Conclusion

So that the process of digitalization touches all the countries of the world but some countries are the world leaders in creating and implementing the digital technologies whereas the others remain behind. This is caused by different reasons but mostly it is the consequence of their development in the past. Many countries are still under influence of the previous “socialistic” development, some are considered to be developing. The developed countries of the world among which there are such countries as the USA, the UK and countries of the European Union are among those which create, develop and implement digital technologies. The peculiarity of the national models of economies of these countries is the high level of commitment to implementing the technological achievements into economy and casual life.

The UK has historically been the leader in the technological development. When the industrial revolution occurred it was the UK among the pioneers to provide it. The strategy of the USA government has also been to provide support to the technological development. Thanks to this fact there are well developed places of creating technologies in the country. As for the European Union countries they have different level of development and provide digitalization with different velocity. There are countries of the EU which are among the world leaders in digitalization and the countries national models of which are marked with retardation.

The pandemic of coronavirus has dictated the new requirements to all the countries of the world. Unexpectedly the ability to provide distant forms of management and business running has become among the most important tasks for all the countries because of the tough quarantine limitations and lack of the possibility and run business physically. The digital technologies turned into the tool if surviving in the new conditions. The production relations have changed drastically and the new technological order has been being constructed in the world economy.

In this connection the countries which showed themselves ready for the changes because have had the appropriate level of the digital technologies development have

managed to meet the challenges. In such conditions the gap between the developing countries and the developed countries (ready for the digital development) can continue growing.

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# Digital Transformation of Malaysian Small and Medium-Sized Enterprises: A Review and Research Direction



Mohamad Yusman Ammeran , Shaista Noor , and Mohar Yusof 

**Abstract** Digital transformation refers to redefining the business process via digital technology. The innovation and digital revolution have remarkable effects on the global economy by affecting organisational relevancy in the marketplace. SMEs are considered as a nation's growth engine and seriously affected due to tech-adaptation challenges that arise at a fast pace such as COVID-19 outbreaks severely affected the SMEs businesses by the drop in demand and scarcity of resources all across the globe, including ASEAN region such as Malaysia, Indonesia, Singapore, Philippine, Thailand etc. Thus, to begin with digital transformation, enterprises must be aware of the factors influencing it as only few countries are lagging in digital transformation in the ASEAN region. This paper aims to highlight the factors influencing the digital transformation of SMEs focusing on internal and external factors. The Innovation and Technology Adoption Theory was selected as the underpinning theory for this research, along with the holistic Technology-Organisation-Environment (TOE) Model as the chosen framework to reflect technology adoption theory. The present study raises some practical implications for policymakers, government and industries. It will help accelerate the rapid adaptation of digital technology for SMEs and directly affect the growth of SMEs. The present study singled out that organisational, technological and environmental factors provide a widespread view of digital transformation of SMEs.

**Keywords** Digital · Innovation · Technology · Organisation · Environment · SMEs · Transformation

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M. Y. Ammeran  
Universiti Tun Abdul Razak, Kuala Lumpur, Malaysia

S. Noor  
Research Resource Centre, Office of Research Innovation and Commercialisation (ORIC), Fatima Jinnah Women University, Rawalpindi, Pakistan

M. Yusof (✉)  
Academic Innovation, Centre for Continuing Education, Universiti Tun Abdul Razak,  
Kuala Lumpur, Malaysia  
e-mail: [ymohar@unirazak.edu.my](mailto:ymohar@unirazak.edu.my)

## 1 Overview

Digital transformation (DX) plays an essential role in today's business world as the fourth industrial revolution gets in shape speedily and business organisations get familiar with digital technology (Morakanyane et al. 2017) related to products, services, and processes. In this regard, large organisations are more technology mature and prepare to take risks than small and medium-sized enterprises (SMEs) (Deniz 2021; Gioldanowski 2019). SMEs need to ride the waves of digital transformation as today's consumers are more affianced with mobile devices. Social media, cloud computing all across the globe, including the ASEAN region (Peillon and Dubruc 2019). The rapid technological advancement may appear as a primary reason for businesses to unlock the digital economy by providing fast, economical and better services (World Bank 2018). However, digital transformation among SMEs is notably lower, as the majority of the studies pointed out digital transformation in the large organisation focusing on the business model and innovativeness (Hänninen et al. 2017; Kaiser and Stummer 2020; Steiber et al. 2020).

Moreover, how the large organisations drive through the digital transformation, especially in developed countries, identified prevalent factors on digital transformation concerning SMEs in the ASEAN region, especially in Malaysia, is missing. Malaysia lags behind international peers regarding digital adoption by businesses as only 62% subscribe to the internet, and less than 30% have an online presence (World Bank 2018), which shows that SME's digital transformation in Malaysia is equivalent to lower-middle-income country. The reason behind that small and medium-sized businesses lack ample resources and skills; however, the Malaysian government is striving to improve the business performance of SMEs for the overall progress and growth of the country as SME Corp Malaysia (2018) revealed five significant obstacles that SMEs are confronting: cost of doing business, cash flow and payment financing, business financing, human capital, and ICT adoption. Despite numerous government interventions to increase digital adoption among Malaysian SMEs to increase GDP contribution, the results remain below the mark. Past literature revealed various studies on technology adoption, but there has been no comprehensive DX analysis in Malaysia, especially in light of the current unprecedented situation with COVID-19, as DX involves multifaceted services that are not well theorized. Hence, the present study discovers the motivating & limiting factors of Digital Transformation by Malaysian SMEs. Since Malaysia aspires to be the outstanding entrepreneurial nation by 2030, it is critical to understand the factors influencing and limiting Malaysian SMEs' digital transformation.



## 2 Leading Theories

### 2.1 Innovation Theory

The majority of the previous research applied the Diffusion of Innovation (DOI) theory. As the models developed based on DOI theory such as the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Technology Readiness Index and Technology Adoption Propensity Index (TAP) (Ajzen and Fishbein 1975; Davis 1989; Karahanna et al. 1999; Parasuraman 2000; Ratchford and Barnhart 2012; Jahanmira et al. 2018). Furthermore, numerous studies revealed that multiple theories or models might be utilised to examine technology adoption from individual to institutional levels (Abdullah et al. 2012; Nahian Riyadh et al. 2009). Table 1 depicts the theoretical models for technology adoption from individual to institutional level.

Previous Literature on technological innovation confirms that most empirical studies refer to the “Diffusion of Innovation” or the DOI theory of Rogers and the TOE framework. Furthermore, most of the researchers recognize DOI as being able to identify “perceived” critical characteristics of technological innovations (Hoti 2015). DOI theory has been applied related to various contexts, which includes organisational studies. Rogers (1995) demonstrated attributes of innovations based on five categories such as (i) relative advantage, (ii) compatibility, (iii) complexity, (iv) trialability, and (v) observability (Askarany 2009). These five variables are influencing factors of innovation. Figure 1 depict the diffusion of Innovation Theory.

Table 2 demonstrates the Extended/Integrated Technology Adoption Model specifically to technology-related subjects. Recent studies pointed that traditional theories need to be integrated to provide more comprehensive constructs, especially when they involved new technologies in specific countries and other factors in determining technology adoption among SMEs.

Previous research demonstrates extensive literature on innovation adoption theory along with the excellent choice of models; however, widely used is TOE Framework. Figure 2 shows the TOE framework developed by Tornatzky and Fleischer (1990). It covered a wide range of innovations and helps in strengthening the DOI theory – specifically in technological and organizational (Hoti 2015; Martins et al. 2018). The framework is used to discover the critical factors that affect the organization’s acceptance of new technology. From the past research, the TOE framework has proven to be reasonably practical and provide insight and showed the highest usage in studies of new technologies (Chen and Chen 2017; Hoti 2015; Hussain et al. 2015).

## 3 What is ICT and Digital Technology

Information and communication technology (ICT) or information technology (IT) refers to technology that provides access to information. It focuses primarily on communication technology, including access to the internet through multiple

**Table 1** Theoretical models for individuals/institutions

| Theory  | Level of analysis | Construct   |
|---|-------------------|---|
| Diffusion of Innovation (DOI) Theory                                    | Individual        | Roger classified individuals based on four categories: Innovator, early adopter, early majority, late majority and laggard  |
| Diffusion of Innovation (DOI) Theory                                    | Individual        | Behaviour and determinants of innovation diffusion based on: Relative advantages, compatibility, complexity, observability, Trialability with two additional constructs: image & voluntariness of use                       |
| Technology Adoption Model (TAM)   | Individual        | Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)  |
| TAM II (revised TAM)  | Individual        | Social influence and cognitive instruments as determinants of Perceived Usefulness (PU), Anchor and adjustments are determinant of PEOU   |
| Extended Technology Adoption Model (TAM)                                | Individual        | Using TAM (perceived usefulness and ease of use) with additional construct, perceived credibility   |
| Unified Theory of Acceptance & Use of Technology (UTAUT) – modified TAM | Individual        | Direct determinants of usage and intention: Performance expectancy, Effort expectancy, Social Influence, Facilitating conditions, Mediators (usage intention & behaviour), Gender, Age, Experience & voluntariness of use   |
| Decomposed Theory of Planned Behaviour (DTPB)                           | Individual        | Based on DOI and TPB, attitudinal belief have 3 parts: (1) perceived usefulness, (2) perceived ease of use, (3) compatibility   |
| Theory of Reasoned Action (TRA)   | Individual        | The most influential theory to explain human behaviour and attitude towards adoption of innovation  |
| The technology-organisation-environment (TOE) framework                 | Institution       | Focusing on three contexts: (1) Technology, (2) Organization, (3) Environment   |
| The technology-organisation-environment (TOE) framework                 | Institution       | Technological context, Organisational context includes resources (capital & human), scope & size, Environment contexts include both the direct and indirect roles of competitors, industry associations and the governments |
| Institutional Theory  | Institution       | Pressures for technology adoption: coercive pressure, normative pressure and mimetic pressure   |

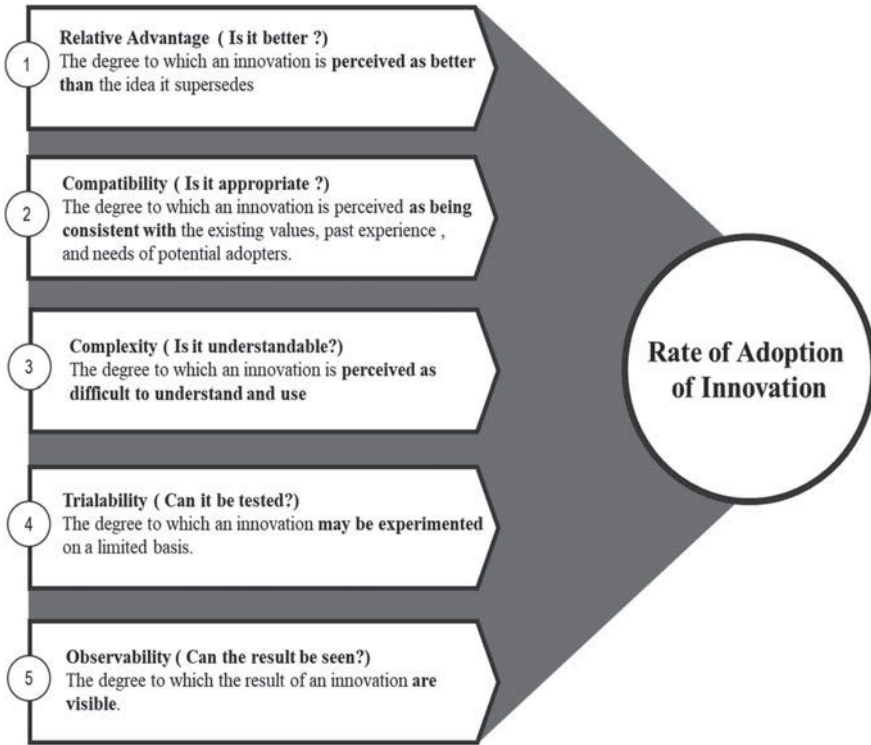


Fig. 1 Diffusion of innovation theory

mediums such as wireless networks and mobile devices (Christensson 2010). Meanwhile, *digital technology* is defined as: “Digitised information is recorded in binary code of combinations of the digits 0 and 1, also called bits, which represent words and images. Digital technology enables immense amounts of information to be compressed on small storage devices that can be easily preserved and transported. Digitization also quickens data transmission speeds. Digital technology has transformed how people communicate, learn, and work” (The Gale Group Inc 2003).

Digital technology is enabled by ICT infrastructures that provide widespread applications to individuals and businesses, creating multiple opportunities for business expansion, new jobs and fast forward modernisations (SME Corp Malaysia 2018). Therefore, it can be concluded that digital technology is a new and emerging technology that encapsulates the process of acquisition, transmission, storage and practical usage of digital data that adds value to individual users and businesses which are enabled by an ICT technology infrastructure. ICT is broadly being used for both analogue and digital technology. Thus, in the new era of digital business, the term digital technology has become more specific as it can be used to refer to current, new and emerging digital and intelligent services.

**Table 2** Extended/integrated technology adoption model in specific technology subject & scope

| Extended /integrated theory                   | Subject            | Scope                    | Constructs/dimensions   | Literature                    |
|---|--------------------|--------------------------|---|-------------------------------|
| Extended Technology Adoption Model (TAM)      | e-banking          | Bangladesh               | TAM (perceived usefulness and ease of use) with additional construct, perceived credibility   | (Nahian Riyadh et al. 2009)   |
| Extended Diffusion Of Innovation Theory (DOI) | e-commerce         | Malaysia                 | DOI (relative advantage, compatibility, complexity, Trialability, observability) with additional construct: Internal culture                      | (Poorangi et al. 2013)        |
| Extended Diffusion Of Innovation Theory (DOI) | Internet-based ICT | Melaka & Johor, Malaysia | DOI (relative advantage, compatibility, complexity, Trialability, observability) with 3 additional constructs: ICT security, ICT cost, Benefits   | (Tan et al. 2009)             |
| Integrating TPB and TAM                       | IT                 | General                  | hybrid model, combining TPB and TAM   | (Riemenschneider et al. 2003) |
| Integrating TAM, TOE and TPB                  | e-commerce         | General                  | 3 adoptions drivers based on TAM with individual constructs from TOE and TPB  | (Stiles 2015)                 |
| Integrating TOE and DOI                       | cloud computing    | North east of England    | Combination of TOE framework and DOI constructs   | (Alshamaila et al. 2013)      |
| IMPULS  | IR 4.0             | Malaysia                 | strategy & organization, smart factory, vertical and horizontal integration, distribution control, smart product, data driven services & employee | (Hamidi et al. 2018)          |

## 4 Digitisation, Digitalisation and Digital Transformation (DX) Concept

The spreading of digital technology to industry, economy, and culture becoming the reason to differentiate between various technologies. Thus, the phenomena that occur

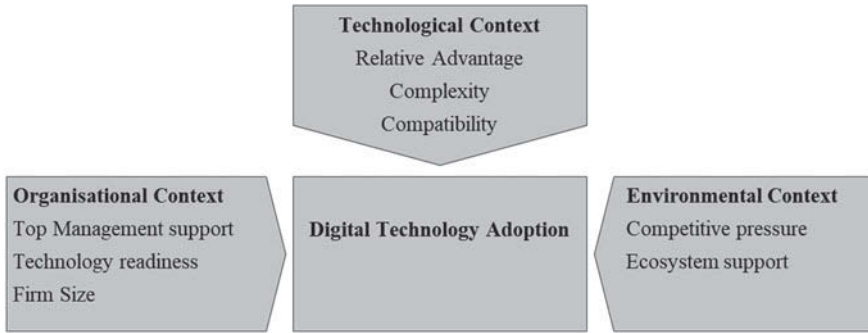


Fig. 2 TOE framework. Source Gutierrez et al. (2015)

when the real and virtual worlds converge to show the need to distinguish between digitisation, digitalisation, and digital transformation and their scale and scope (Kwon and Park 2017; Saarikko et al. 2020). Savi (2019) compiled the definitions of three digital domains demonstrated in Table 3. Digitisation is about converting non-digital to digital format. Digitisation is fundamental because it creates a connection between physical and digital that provide business value because of digital data. Meanwhile, digitalisation refers to enabling or improving processes by leveraging digital technologies or digitised data such as electronic forms connected to supply-chain management to deliver the services to customers. Digitalisation aims to increase productivity and efficiency while at the same time lowering costs by enhancing current systems but does not modify or transform them. Digital transformation involved business transformation enabled by digital technologies.

Table 3 Digitisation, digitalisation, and digital transformation

|           | Digitisation  | Digitalisation                                      | Digital transformation   |
|-----------|---|---|--|
| Focus     | Data conversion   | Information processing                              | Knowledge leverage   |
| Goal      | Change analog into digital format                                     | Automate existing business operations and processes | Change company’s culture, the way it works and thinks                |
| Activity  | Convert paper document, photos, microfilm VHS tapes to digital format | Creation of completely digital work processes       | Creation of a new digital company or transformation to a digital one |
| Tools     | Computer and conversion/encoding equipment                            | IT systems and computer applications                | Matrix of new digital technologies                                   |
| Challenge | Volume (Material)   | Price/Financial                                     | Resistance to change—Human factor                                    |
| Example   | Scanning paper  | Completely electronic registration process          | Everything electronic from registration to content delivery          |

## 5 Digital Transformation

Digital transformation can be defined as the processing of digital computers, online sites, mobile operating systems, and social media knowledge. Each digital product and service's value propositions are assessed on customer segmentation dynamics, product quality, and service bundling, and channel owner commissions (Holmstro and Nyle 2015). A detailed analysis of DX definitions was conducted by Morakanyane and Grace (2017) to determine how researchers describe the digital transformation. Similar study was conducted by Joao Carlos et al. (2018). Furthermore, Jurgielewicz (2019) conducted the digital transformation literature review. The findings of DX definitions by these three studies are shown in Table 4.

## 6 Emerging Technology Under DX

The digital transformation involved the changes that are guided and developed on a technological base. It is characterised within an enterprise as an organisational transition to technologies for big data, analytics, cloud, mobile and social media (Nwankpa 2016). Hence, Digital transformation with the commercial world (Westerman et al. 2012) rise of because of emerging technologies such as IoT, Big Data, Machine Learning, Artificial Intelligence, Smart services, Robotic Process Automation (RPA) and other new technology leveraging on cloud computing and high bandwidth fixed and mobile connectivity infrastructure coverage such fibre optic and 5G. Understanding the digital technologies under DX will give better clarity on their benefits to SMEs. Table 5 depicted emerging technologies enabling DX.

Those technologies are mapped to the vital aspect of business improvement and value creation as DX's benefits to SMEs (Table 6).

Those technologies are vital enablers for Industrial Revolution 4.0 (IR 4.0), involving cyber-physical systems (CPS). Industry 4.0 can be seen by using cyber-physical systems to transfer the concepts of the internet of things to industrial applications. Intelligent control, information, and communication devices characterize these systems. They can communicate with other systems and humans and interact autonomously. It reflects the "internet of things" (also the "internet of goods and services") with the support of mobile devices (e.g., smartphone or smartwatch) and new apps for users or consumers; various evolutionary stages are possible (Müller and Hopf 2017). The cyber-physical systems are capable of delivering tailor-made, personalized goods and services in a flexible way and around the world. Digital tools are essential to help SMEs acquire the required facilities, which are imperative for providing information at the right time (Ghobakhloo et al. 2012).

**Table 4** Digital transformation definitions

| Researcher                   | Digital technology aspect/usage   | Area of improvement or transformation  | Impact or value   |
|------------------------------|---|--|---|
| Morakanyane and Grace (2017) | Integration of digital technologies   | Business processes   | Process Integration   |
|                              | Leveraging digital resources  | Strategy & Execution   | Create differential value                                     |
|                              | Fundamentally altering traditional ways of doing business                                     | Redefining business capabilities, processes, and relationship                            |   |
|                              | The use of technology to radically improve performance  | Business process and market access   | Reachability & business performance                           |
|                              | A business model is driven by changes related to the applications of digital technologies     | Business Model   | All aspects of Human Society                                  |
|                              | Use of new digital technologies   | Business Improvements  | Significant business improvements                             |
|                              | Realignment of technology and business models   | Customer engagement at every touchpoint  | Customer experience   |
|                              | Changes induced by digital technologies   | Throughout an organisation   | Business transformation                                       |
|                              | Changes of digital technology   | Business model, Products, Organisational structure and automation                        | Business transformation                                       |
| Joao Carlos et al. (2018)    | Use of new digital technologies; (1) Social Media (2) Mobile (3) Analytics or embedded device | Enhancing customer experience, streamlining operation, and creating a new business model | Major business improvement                                    |
|                              | Realignment or new investment in technology and business model                                | Customer experience  | More effectively engage digital customers at every touchpoint |
|                              | Usage of ICT  | Business automation  | Affecting politics, business and social                       |
|                              | Use of technology   |  | Reachability and radically improve business performance       |
| Jurgielewicz (2019)          | Go beyond digitisation process  | Product & process  | Revenue created from revenue assets                           |

(continued)

**Table 4** (continued)

| Researcher | Digital technology aspect/usage               | Area of improvement or transformation                             | Impact or value                                  |
|------------|---|---|--|
|            | Complete networking of all sectors            | Collect relevant information and turn the information into action | New advantages and opportunities to the business |
|            | Usage of ICT                                  | Creation of new capabilities                                      | People and society's life                        |
|            | Reinventing a business to digitize operations | Operation and supply chain relationship                           | Re-energizing business to capture new potentials |

**Table 5** Technology enablers for DX

| Technology                                       | Features   | Benefits to business   |
|--|--|--|
| Digital Platform                                 | Connecting demand (buyer) and supply (seller) using digital platforms  | Increase market access, Business Model Innovation & better customer experience   |
| Cloud Computing                                  | Scalable and flexible computing resources  | Cost-effective solutions and expedite go-to-market                               |
| Internet Of Things (IOT)                         | Collect the data using sensors that measure behaviour and equipment's health for predictive monitoring and improve response time | Operational efficiencies   |
| Business Analytics & Artificial Intelligent (AI) | In-depth analysis of data and information that provide insight and recommendations to businesses                                 | Better and faster decision-making process with insights                          |
| Robotic Process Automation (RPA)                 | Replace human resources for repetitive activities using the software   | Automation of process, reduce human errors and resources                         |
| Cybersecurity                                    | Protect network and customer and business data, critical assets for digital business   | Protect data and operation from cyber threats that can cause business disruption |

**Table 6** DX – Technology, key aspects of improvement & value creation (Herbert 2019)

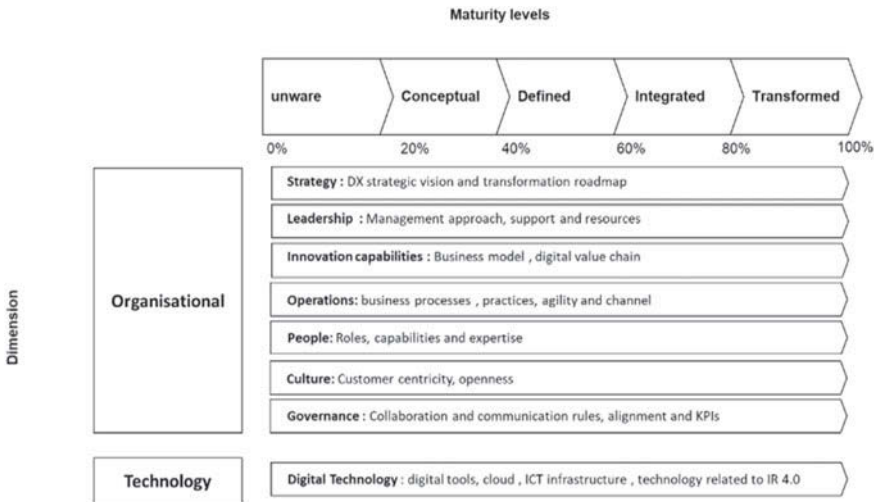
| Technology   | Internal processes improvement  | Customer experience enhancement                            | Business model innovation  | Value creation                 |
|--|---|--|--|--------------------------------|
| Usage of Emerging/new digital technology such as cloud, RPA, digital marketing, IOT, cybersecurity | Way of working that improves operations, analysis and decision making | Engagements, interactions, and transactions with customers | How revenue is generated and how customers are acquired and retained | Business, society, and economy |



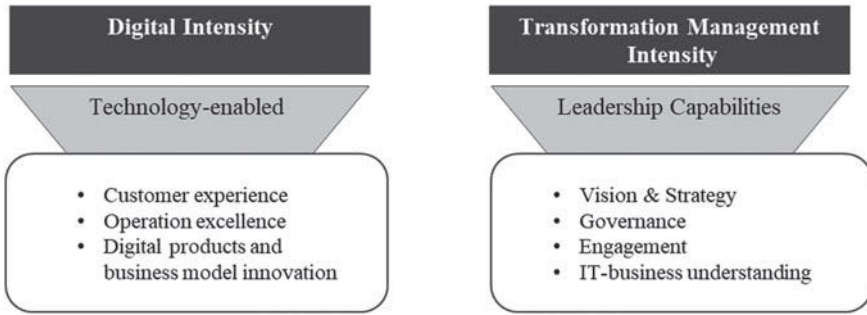
## 7 Organisational Aspect

Azhari’s maturity model consists of eight digitisation dimensions: strategy, leadership, products, operations, culture, people, governance, and technology. Five levels of digital maturity are defined, which allow companies to classify themselves. The first level, “unaware”, defines organisations where the digital transformation strategy is not in place. The second level is “conceptual”, selling a few digital products but still lack a digital strategy. The third level is “Defined”, which are the companies that can consolidate pilot experience as part of the implementations. A culture of digital thinking is taking root in the enterprise at this point. The fourth level is “Integrated”, are the companies have a clear digital strategy. After having developed and implemented a digital strategy across all products and business processes, the company can be classified as “transformed” (Leipzig et al. 2017) (Fig. 3).

A more superficial Digital Maturity level was introduced by Korachi and Bounabat (2020). It has three levels; Maturity-level 1 organizations use IT as a tool to support business processes. Maturity-level 2 organizations use IT to improve the business processes; maturity-level three organizations define processes that enable effective and efficient use of IT technology to help the organization achieve its aims and business performance (Fig. 4).

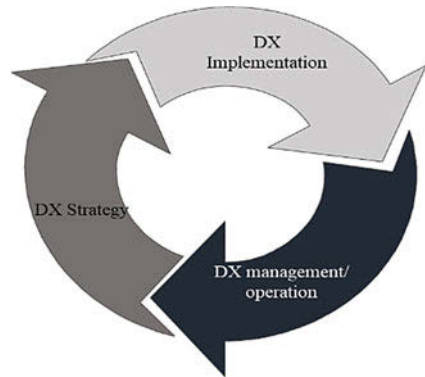


**Fig. 3** Digital maturity levels. *Source* Leipzig et al. (2017)



**Fig. 4** Areas transformed. *Source* Westerman et al. (2012)

**Fig. 5** Areas transformed. *Source* Korachi and Bounabat (2020)



## 8 Digital Strategy and Implementation

DX starts with the leadership, who formulates the strategy and supports the implementation. For SMEs to keep up with the new digital world and face digital transformation challenges, businesses need a digital transformation strategy to be established and implemented that covers the implications of digital transformation and drive operational excellence (Korachi and Bounabat 2020). DX phases are shown in Fig. 5.

### 8.1 Organisational Leadership: Mindset, Managerial Capabilities and Support

Based on the earlier segment, strategy is essential in digital transformation, which lies to SMEs’ owner or management. Macro factors such as culture and the digital divide were seen to influence the behaviour of individuals. Many owner-managers of SMEs

implied that resource limitation caused them not to adopt new technology; even if they had the resources, they might not be inclined to adopt more technologies. The culture or mindset of SMEs may determine whether they want to adopt new technology.

In Malaysia, based on Hanifah et al. (2017), most Bumiputera entrepreneurs' failure is due to a lack of management competencies. Poor decision-making caused less effective performance management. Lack of creativity and knowledge coupled with limited skilled workers contributed to low productivity. This explains the lower number of Bumiputera SMEs adopting new technology in their business processes and activities.

When comparing SMEs in other countries (Ghobakhloo et al. 2012), it is found that perceived benefits, government support, and management support are the main determinants that influence IT adoption among SMEs in Brunei. This suggestion is backed up by evidence (Doe et al. 2017), through which the author concludes that the use of mobile technology has challenged the usual trend of adoption in Ghana. Factors of personal level should contribute directly to company-level adoption. The company's workers are expected to embrace and use the technologies in the business.

In Taiwan, Junaidah Hashim (2007) identifies the factors influencing digital adoption: the company's size, characteristics and perception of CEOs towards ICT in terms of compatibility, relative advantage and complexity. The right mindset of SME leaders, along with the proper knowledge and understanding of digital technology, is a crucial ingredient to drive digital adoption in their company. Strong belief to innovate and go beyond business is an essential internal factor for the decision-maker to embrace a new way of running a business. As far back as 2007, the findings showed that the low adoption of ICT by SME owners in Malaysia was primarily because they felt that ICT adoption was difficult (Hashim 2007).

## ***8.2 Organisational Knowledge, Skills and Motivations***

Nadkarni and Prügl (2020) research indicates that additional and refined skills for leaders and organisations are needed to achieve digital transformation. The main reason for this is that digital technology creates challenges for innovation that are highly complex. Many businesses struggled to meet these challenges then have suffered enormous consequences. Companies looking to evolve with digital technology to their product and service offerings need well-versed managers in digital technology's fundamental nature (Holmstro and Nyle 2015). Resource-Based View (RBV) is a unified theory for an organisation's internal capabilities action for digital transformation. The resource-based view has been used widely to describe how businesses can achieve strategic advantage and superior efficiency in the IS literature. The heart of the theory is that superior business success is due to resources and abilities that competing companies are firm-specific, rare, and difficult to replicate (Nwankpa 2016). The RBV takes an 'inside-out' view or company-specific viewpoint on whether companies in the marketplace excel or fail (Madhani 2010).

From strategic and operational objectives, an organisation can be shaped and accomplished through technology management. *Technology management* is a process that includes planning, directing, control and coordinating the development and implementation of technological capabilities (Liao 2005). Therefore knowledge and skills are essential to address several barriers to IT adoption. Limited resources such as skills, financial and competencies are other factors that caused the low adoption of ICT. Malaysia's serious efforts are to drive technology usage through training and skills development, including initiatives to drive and entice SMEs to adopt the internet as the new way and a more efficient approach to doing business. However, it remains to be seen whether the initiatives can reduce the digital gap. The same situation occurs in Taiwan, where the study shows that ICT skill is one of the ICT adoption determinants (Hashim 2007). In another study focusing on the manufacturing sector Terziovski (2010) explained that SMEs in the manufacturing sector develop competitive advantage through their staffs' creative potential to develop differentiated products for niche markets" (Terziovski 2010). Lack of resources hinders many small and medium enterprises from using or adopting IT compared to larger businesses (Sarosa and Zowghi 2003). Lack of resources is not the only barrier for SMEs to embrace new technology. It is also due to several internal and external factors. Technical competencies and computing skills directly influence how small and medium enterprises evaluate the information system. Innovativeness is critical in determining ICT use among women entrepreneurs in Malaysia (Carlos et al. 2018).

Strategic technology management is crucial for businesses in the current situation characterized by accelerated development of technology and stiff technology-based competition. To achieve sustainable growth, businesses must develop and maintain their technological capabilities to generate external and internal impacts within a volatile socioeconomic context (Sahlman 2010). Business growth and business sustainability relate to technological innovation that creates economic value (Katila and Chen 2008). Meanwhile, technology management is being used to create business transformations to adapt to the fast-changing environment (Unsal and Cetindamar 2015). In any organisation, motivation is the critical ingredient for success. Organisations can have all the world's technical skills, but they will not succeed if they can not motivate their team. Employees are naturally forced to respond to technology's ever-evolving requirements. Every day, new technology advances face workers in the workplace. Some workers welcome the improvements that technology brings. They are looking for new applications for the innovation, while others are resistant and defensive. Employees today want to share what they generate with the financial rewards, and they want to be compensated for the value they deliver, not the hours they spend (Afzal et al. 2013). Thus, digital knowledge, skillset and motivations are the critical components of SMEs' success in leveraging digital technology and reaping digital transformation benefits. Appropriate skills are needed for SMEs to start harnessing the technology that involves front-end and back-end systems. With the right skill, raw data captured by digital technology can be utilised as valuable and actionable insights that provide an extra advantage for SMEs to stay ahead of their competition, effectively expand their market reach and provide better services to their customers. Therefore, it can be concluded from the previous studies that DX strategy, managerial capabilities, managerial supports, technical capabilities and staff

**Fig. 6** DX’s organisational aspects



motivations are the identified organisational factors that affect DX in the companies, as shown in Fig. 6.

P1: In the context of SMEs, a digitally transformed SME can be determined based on the level of organisational transformation and the level of technology utilisation. Hence, a successful digitally transformed SME can be compared to a less successful one by measuring the level of organisational transformation and the level of digital technology utilisation.

## 9 Environmental Aspects

*Digital transformation* is a dynamic process that impacts all aspects of organizations’ business, management, and internal and external environments (Stoianova et al. 2020). The context of digital transformation in SMEs can be understood by studying leadership, organization, technology, and process; it includes the industry’s environmental aspects (Hausberg et al. 2019; Kwon and Park 2017). An entrepreneurial ecosystem analysis is essential to deep dive further into the environmental aspect from a macro perspective. There exists a considerable body of literature on the entrepreneurial ecosystem. One of the most frequently used is Isenberg’s Model. Figure 7 presents the entrepreneurship ecosystem model adapted from the Isenberg framework.

The entrepreneurship ecosystem recommended by the Isenberg framework cover six key dimensions, (i) Policy (leadership & government), (ii) Finance (financial capital), (iii) Culture (societal norms and success stories), (iv) Support (infrastructure, support professionals such as legal, accounting, technical experts and community support) (v) Human Capital (skilled and unskilled labour, entrepreneur training) (vi) Market (market access and marketing support). Some authors have also suggested a few ecosystems related to SME technology adoptions; Bockstedt and Kauffman (2005) introduced a technology ecosystem that covers two dimensions by the Isenberg framework. Figure 8 shows the three dimensions of the technology ecosystem.

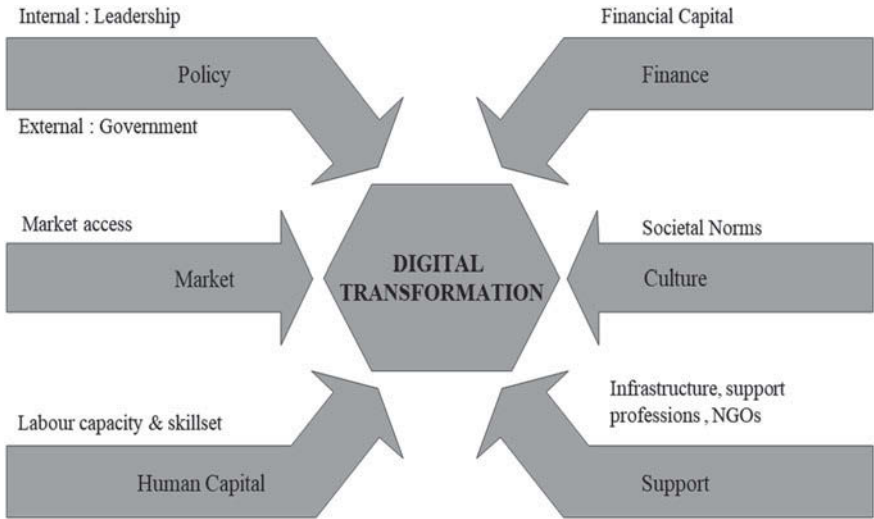


Fig. 7 Entrepreneurship ecosystem. Source Al-Abri et al. (2018)

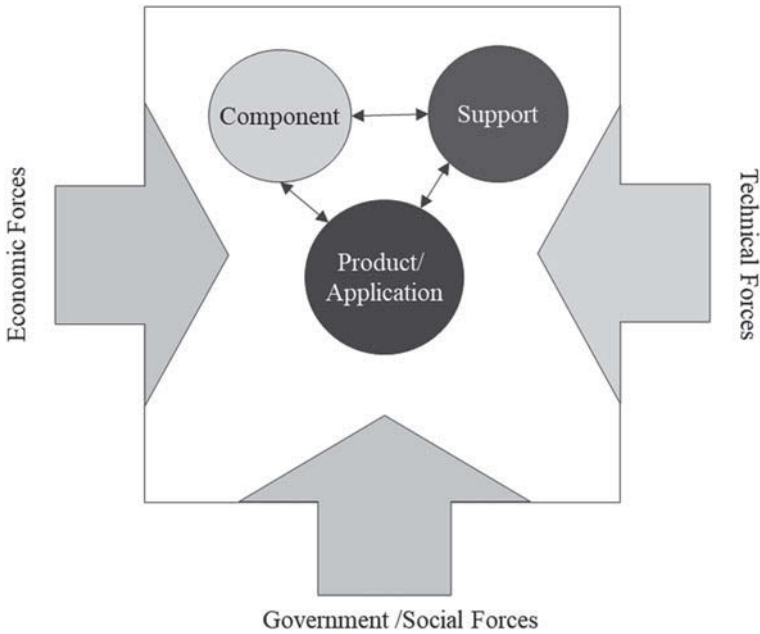
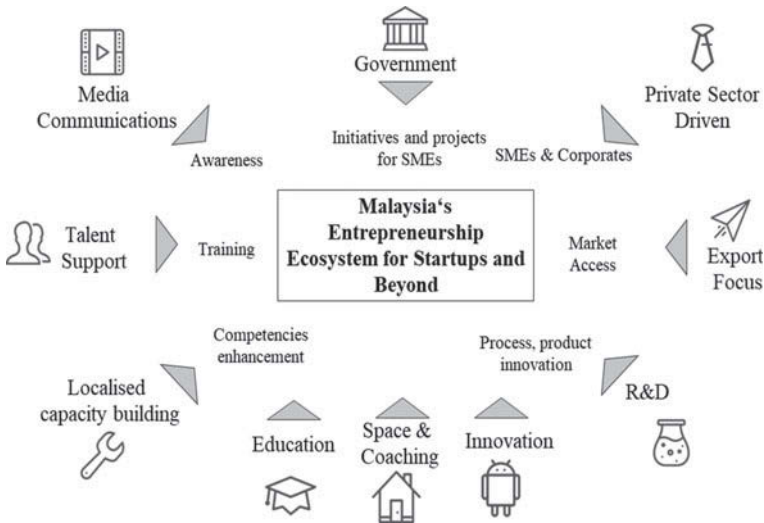


Fig. 8 Dimensions of technology ecosystem. Source Bockstedt and Kauffman (2005)



**Fig. 9** Malaysia’s entrepreneurship ecosystem. *Source* Xavier (2016)

Xavier (2016) explored the SME ecosystem in Malaysia’s. The study focuses more on start-ups in Malaysia and includes Government and private sectors as part of the ecosystem, as illustrated in Fig. 9.

Based on the entrepreneurship ecosystem studies, it can be concluded that government and Industry players’ supports are essential to driving digital transformation. The supports are required from multiple aspects such as policy, market access, financing facilities, digital tools, capacity and capability building. A sound and well-functioning entrepreneurial ecosystem are essential for countries to nurture SMEs’ involvement in the digital economy. Institutional and regulatory settings can help provide conditions for SMEs to access markets and skill up their resources to scale up their capabilities to capture the business growth potential enabled by digital technology (OECD 2018). The literature review shows that an ICT-friendly policy is essential for SMEs to provide related technology training to enhance their employees’ capabilities in the Malaysian context. It is also essential for government agencies to fund the training programmes through various skills development centres in the country (Tan et al. 2009).

## 10 Market Factor: Covid-19 Disruptions

In 2020, the world faced an unprecedented situation when the spread of infectious disease COVID-19 became a global pandemic crisis. Most governments took drastic measures by implementing lockdown or Movement Control Order (MCO) to flatten

the COVID-19 incidents (Whitelaw et al. 2020). Social distancing, online classes, contact tracing, virtual meetings and work-from-home (WFH) have become the new norms. The COVID-19 coronavirus pandemic has had a tremendous impact on businesses, especially the worldwide tourism industry. Quarantines and transport closures have contributed to a 22% drop in international visitor arrivals in Q1 2020 relative to 2019 and likely 60–80% over the whole year. With an unprecedented 50 million global jobs at risk because of the pandemic, businesses are in a fight for survival (Lau 2020).

The pandemic has forced more companies to turn to digital applications to allow work from anywhere and mitigate risk in day-to-day operations. The needs of the best infrastructure networks provide communications and allow intelligent connectivity through artificial intelligence (AI), cloud, big data, Internet of Things (IoT) and other platforms. These digital technologies have enabled facial recognition, allowing the hotel industry to transform its check-in and payment process digitally and securely (Lau 2020). It led a variety of companies to implement “contactless” solutions. Whether big or small, shopping centres are anticipated to use robotics to ensure social distancing and reduce workers who have to come to work physically. Work-From-Home (WFH) has increased the usage of virtual meetings, video conferencing and online platforms, which drive the gig economy. The pandemic looks like a catalyst that pushes the industry to be more technologically advanced. People and organisations have had to adapt to new ways of work and life (Deniz 2021; Lau 2020).

Today, customers no longer expect businesses to respond to their expressed demands but implicitly expect companies to anticipate and meet their future needs before they realise them. This digital-way approach is the most reliable catalyst for consumer satisfaction and competitive advantage in this digital era (Leipzig et al. 2017). IT competencies are essential to accelerate SME owners’ efforts and their employees to leverage technology and remain relevant in today’s knowledge-based economy (Hashim 2007). There is substantial evidence from multiple reports (Deloitte. 2017; SME Corp Malaysia 2018; World Bank 2018), studies and surveys that show that technology savvy enterprises are much more likely to grow than SMEs which utilise less technology. In June 2018, Huawei Technologies and SME Corporation Malaysia conducted a study of 2,033 SMEs covering services, manufacturing, construction, and agriculture to explore the level of ICT adoption and understand the drivers and barriers of digital transformation of SMEs in Malaysia. The results show the computerisation trap that Malaysian SMEs have faced and that there are several approaches to help SMEs adopt digital technology and leverage the technology to empower their business with the support of private and Government agencies (SME Corp Malaysia 2018). The survey discovered that to ensure accelerated adoption and usage of the digital environment, three areas need to be prioritised:

- Having access to digital technology tools (including affordability and experience)
- Having competency or literacy and know-how to use the technology; and
- Being able to participate in or test-drive the digital applications and create the necessary digital environment with available technology.



**Table 7** Comparison of relevant DX framework for business

| Conceptual framework  | What to transform   | How to transform   |
|---|---|--|
| Six Keys to Success   | Business Model  | By linking technology trends to market needs   |
| Digitisation Piano  | Business Model, Organisational structure, Human Resources, International processes, IT capabilities, Products/Services and stakeholders | The process of digitalisation should lead to organisational change and the development of digital business agility                         |
| Digital Orchestra   | Go-To-Market, Customers, Partners, Workforces, Process, IT capabilities, Incentive, Culture   | Organisation leadership and value creation   |
| Digital Re-invention  | New Expertise, New Focus, New Ways of Work  | Bottom-up re-invention of strategy   |
| Digital Innovation Strategy   | Product, Environment and Organisation   | Focused exclusively on products/services   |
| Digital Transformation Framework by Corver & Elkhuizen                        | Customer, Product, Organisation, Process, System  | Understanding of customers before moving to other areas  |
| Combination of DOI & TOE (Chen and Chen 2017; Hoti 2015; Hussain et al. 2015) | Use of digital technology to improve customer experience, operational excellence & business model innovation                            | Individual aspects strengthen by comprehensive business perimeters (Technological aspects, Organisational aspects & Environmental aspects) |

In his journal titled “Review and Comparison of Conceptual Frameworks on Digital Business Transformation”, Fortune facilitated comparisons between different frameworks in the following table. It is worth noting that an overwhelming number of conceptual frameworks on digitalisation root in industry and academia (Nwaiwu 2018) (Table 7).

- P2: Under normal circumstances, organisational factors are expected to have a greater influence compared to environmental factors in SMEs’ digital transformation.
- P3: Due to Covid-19, environmental factors may have a greater influence in accelerating digital transformation in SMEs.

## 11 Conclusion and Future Research Directions

A large number of existing studies in the broader literature have examined digital transformation. The major gap in these studies is that they made fewer attempts to dive deeper into multiple digital technologies that drive DX. Most researchers

focused on a single technology and did not cover the recent global changes due to the unprecedented COVID-19 pandemic situation. This unprecedented crisis required new research on SMEs' digital technology competencies with different challenges, skills, capacities, and behaviours to embrace new technologies. Previous studies were less focused on strategy and motivation factors. To develop the field of DX, it is imperative that future research consider the analysis of emerging and new technology trends and megatrends which include more sophisticated applications or advanced enterprise solutions relevant to SMEs.

New stimulus packages by government and industry and different levels of competition and collaboration have been seen in the market. It is crucial to analyse these changes for SMEs, not just from an academic perspective but also from a managerial perspective, to unlock their potentials in addressing the current difficult economic situation. While there are many researchers who are able to describe DX, nonetheless, it is not yet well-theorised. A serious drawback of all the models is that they are not linked to SMEs' different segment behaviours and business priorities based on the different nature of business and challenges. A considerable body of literature on the environmental contexts explains the environments that influence the internal and external factors that affect digital technology adoption among SMEs.

Further, the TOE Framework lacks the depth required to understand individual characteristics because SME segments are shaped and transformed by DX, especially for personal acceptance of new technology. Hence, TOE as theoretical frameworks may require further extensions and modifications to make the structure more robust for DX's study. Meanwhile, when the increase of relative advantage, compatibility, trialability, and observability of the latest technology, improves the acceptance rate of the new technology for DOI. Among these innovation attributes, observability and trialability are not commonly applied in IT adoption studies. Therefore, improving the models will integrate and extend the TOE model, DOI and RBV as described in the conceptual framework. The understanding can help accelerate rapid digital technology transformation for Malaysian SMEs, which directly impacts the growth of the nation's digital economy.

The COVID-19 pandemic has produced an unusual situation. The environmental aspect is becoming increasingly important in the adoption of new technologies. Work from home, virtual events, temperature checking, contact tracing, digital vaccination certificates as a license to dine-in or travel, and other changes have been intensified as a result of the COVID-19 outbreaks and lockdowns. This scenario demands further studies into environmental variables since the changes are considerable, affecting both the demand and supply sides, driving business automation powered by technology that SMEs required to deal with challenges and exploit new possibilities.

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# An Accelerating Bangladesh and an Emerging India—Some Selected Economic Comparatives



Hafizur Rahman

**Abstract** Bangladesh completed its fiftieth birth anniversary in 2021. Before being partitioned in 1947 as the eastern part of Pakistan, modern Bangladesh was a major political segment of Bengal of undivided India. A homogenous population, overwhelmingly Muslim majority inherits the ‘sunny signs’ of tolerance, peace-loving, hardworking, competitive, and material wellbeing. India, on the other hand, a much-diversified non-homogenous country majority being Hindu still retains the imprint of Muslim rule—the marvelous “Taj Mahal” one of the Seven Wonders of the World. Today’s India is the fifth-largest economy in the world with around 1.4 billion population having a good technological and professional base. A comparison between these two sovereign countries may always remain debatable. Since both societies are striving for a common goal of a higher standard of living for their citizens, an attempt to compare the relative performance in the area of economic development using some universal indicators may shed some light on policy implications. This may generate a spirit of healthy enthusiasm and competitiveness among the citizens of these two countries and the people living around them in particular and other developing nations in general. After all, we are living in an era when science and technological developments made the entire world a global village and when mutual research, feedback, collaboration, and cooperation are increasingly warranted for a better world.

**Keywords** Standard of living · Measurements · Universal indicators · Economic growth · Poverty reduction · Employment · Productive efficiency · Inflation

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H. Rahman (✉)

CPA, CGFM, Former Professor, Abu Dharr Gifari College, Dhaka, Bangladesh

Alumnus, Franklin Fellows, US Department of State President-B. Business LLC, Silver Spring, MD, USA

## 1 Introduction

For the first time in human history, global wealth has increased so much so that 1%<sup>1</sup> of the world adult population is now a dollar millionaire. While India is at the forefront of this list especially in Asia, curiosity arouses how its neighbors like Bangladesh, Nepal, Pakistan, and Sri Lanka are doing. Bangladesh is being in the stage of take-off for pre-condition for development, researchers and policymakers are increasingly interested to have an insight into the underlying economic parameters and the socio-economic evolution that both India and Bangladesh are currently going through.

## 2 Literature Review and Proposed Relationships in the Conceptual Model

In his article “The Paradoxes of the Bangladesh Miracle”, Arvind Subramanian mentioned about Bangladesh achievements in its citizens’ average standard of living due to Bangladesh’s success in “becoming a leading textiles and clothing exporter, trailing behind China & Vietnam”. He attributed part of Bangladesh economic success to the role of nongovernmental sector. In his own words “while Pakistan is seen as a failing state, and India as a flailing state, Bangladesh is a fledgling state, though more effective than its South Asian neighbors”. Among additional factors he mentioned were the existence of plentiful labor, foreign aid, remittances, Multi-Fiber Agreement (currently abolished) and “the programs established by the United States and the European Union”.

Coface For Trade in its latest Economic Studies updated in February 2021 indicated the following strengths and weakness of Bangladesh:

The strengths are:

- Competitive garment sector and cheap labor
- Remittances from expatriate workers
- Moderate level of public debt
- A third of population under the age of 15
- Financial inclusion through microfinance & mobile services.

Whereas the weaknesses are:

- Economy vulnerable to changes in global competition in the textile sector
- Low participation of women despite progress made
- Recurring and growing political, religious and social tensions
- Business climate shortcomings and lack of infrastructure
- Vulnerable to climate risks

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<sup>1</sup> 2020 marks the year when, for the first time, more than 1% of all global adults are dollar millionaires”—page 18 Global Wealth report 2021—June 2021, Research Institute, Credit Suisse.



- Fragile banking sector, many non-performing loans on banks' balance sheets.

In her article titled “With risks looming over, are we over relying on pent-up demand?” in 2021, Dr Rumki Majumder, Associate director of Deloitte India pointed out some of the problems Indian economy is currently facing due to the severe effects of Covid-19. In her own words “India lost 22.7 million jobs during April-May 2021, with the workers in the low and semi-skilled, and informal sectors bearing the brunt. Close to 17.2 million daily wage earners lost jobs as against 3.2 million salaried employees”. With no sign of quick recovery of Covid-19 & Delta both India & Bangladesh economies are expected to experience significant economic slowdown. It appears that they are in the same “cognitive dissonance” that was existing in February 2021.

In its March 31, 2021 overview, World Bank in India observed “after growing at very good rates for years, India’s economy had already begun to slow down before the onset of the COVID-19 pandemic. Between FY17 and FY20, growth decelerated from 8.3% to 4.0%, with weakness in the financial sector compounded by a decline in the growth of private consumption..... The economy is expected to rebound—with a strong base effect materializing in FY22—and growth is expected to stabilize at around 6–6.5% thereafter”. In its March 30, 2021 overview, World Bank in Bangladesh observed “Bangladesh has made remarkable progress in poverty reduction, supported by sustained economic growth. It has been among the fastest-growing economies in the world over the past decade, thanks to a demographic dividend, strong ready-made garment (RMG) exports, and stable macroeconomic conditions.....Resolving longer-term structural challenges could accelerate the post-COVID-19 recovery.....With the right policies and timely action, Bangladesh can accelerate its recovery from the economic downturn and continue to progress towards upper-middle-income status”.

Author Nimish Adhia in his article entitled “The History of Economic Development in India since Independence” analyzed the rationale why initially Indian leaders chose the strategy of rapid industrialization by creating heavy industries as they were influenced by the “socialistic society”. He believes that Indian progress in the last half-century remains below its potential when compared with the performance of China & South Korea during the comparable period. He elaborated how a policy of “liberalization, privatization, and globalization” made India today’s India.

Table 1 briefly compares Bangladesh and India.

### 3 Research Methodology

The study is based on secondary data collected from international agencies (World Bank, IMF, ADB), country official sites, as well as reputable websites. The large body of data has been taken to verify data integrity for comparison and underlying analysis. A T-test is used to compare different sets of data of India and Bangladesh. With the null hypothesis (“there is no difference between certain characteristics of a

**Table 1** Some numbers at a glance

| Indicators/Classification                          | Bangladesh | India     |
|--|------------|-----------|
| Ranking as a developing Market Economy             | 38th       | 46th      |
| Birth of the nation                                | 1971       | 1947      |
| Ranking in the world in terms of GDP Nominal Terms | 41th       | 6th       |
| GDP (Nominal) (billions of Dollars)—2021 projected | \$352.91   | \$3049.70 |
| GDP Per capita Nominal                             | \$2,122    | \$2,191   |
| GDP Per capita PPP                                 | \$5,812    | \$7,333   |
| Ranking of GDP per capita (Nominal)                | 148th      | 144th     |
| GDP per capita Purchasing Power Parity             | 135th      | 128th     |
| Population in million (estimated in 2021)          | 166.3      | 1390.0    |

population”), a p-value is used to accept or rejects the null hypothesis. Excel Software was employed to calculate p-value and other statistical results throughout this paper.

## 4 Economic Growth

### 4.1 Measurement of Economic Growth

Economists and statisticians track economic growth by gross domestic product, known as GDP. However, some economists raised limitations and biases in the GDP calculation.<sup>2</sup> While GDP method considers the value of goods and services of a nation including “income from foreign investments”, it does not show the economic health of a nation. Gross National Product (GNP) measures the total income accruing to the population over a specified amount of time (excluding income of non-residents within a territory). The Bureau of Economic Analysis (BEA) used GNP as the primary indicator of US economic health until 1991. In 1991, the BEA began using GDP, which was already being used by most other countries.<sup>3</sup> Both GDP & GNP are measures of productivity and not of welfare or happiness.

Nominal GDP is calculated at market or official exchange rate, whereas GDP PPP (purchasing power parity) considers cost of living. Both methods are not free from their underlying drawbacks.

<sup>2</sup> Investopedia “What are the Best Measurements of Economic Growth?—By Sean Ross, Updated June 30,2021.

<sup>3</sup> Investopedia “What are the Best Measurements of Economic Growth?—By Sean Ross, Updated June 30,2021.

## 4.2 Gross Domestic Product (GDP)

Table 2 shows that the GDP of India is more than ten times larger the GDP of Bangladesh. The t-test results in Table 3 shows a significant difference between both countries (P-value is lower than 0.05).

More specifically, India's average GDP growth (4.3%) was lower than Bangladesh (11%). India's highest annual growth was posted in the year 2017 (15.5%) followed by a significant decline in 2018 (1.9%). Both countries were severely impacted by Corona Virus—19, resulting in a negative growth (8.6%) for India in 2020.

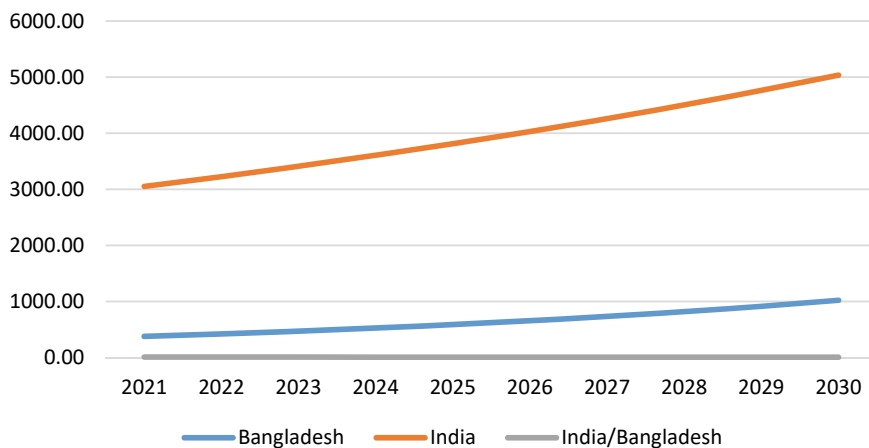
Table 4 reveals the breadth and depth of Corona Virus impact as of August 13, 2021. Death and total cases per million population indicate that severity of Corona Virus was more than two times higher in India than Bangladesh while vaccination campaign (tests per million population) in India was seven times extensive than Bangladesh. With 12% population of India, Corona specific death in Bangladesh was 6% equivalent to total fatalities in India. Total deaths officially recorded as of August 13, 2021 were 4,357,429. Total cases in India were 23 times larger than in Bangladesh indicating the intensity of the pandemic. Bangladesh experienced a moderate growth of 7% during the pandemic period of 2020–2021. Except in 2012, the annual GDP growth of Bangladesh was higher than 10% in seven consecutive years (out of nine), with the highest being in 2014 (15%).

Except 2017, India's GDP growth was below 10% in 8 out of 9 comparable years. This suggests that GDP growth in Bangladesh was continuously more progressive than India during the last decade (Fig. 1).

**Table 2** GDP (current US\$)—in billion

| Year                       | Bangladesh     | Percent change | India           | Percent change |
|----------------------------|----------------|----------------|-----------------|----------------|
| 2011                       | \$128.6        |                | \$1823.0        |                |
| 2012                       | \$133.4        | 4%             | \$1828.0        | 0.3%           |
| 2013                       | \$150.0        | 12%            | \$1857.0        | 1.6%           |
| 2014                       | \$172.9        | 15%            | \$2039.0        | 9.8%           |
| 2015                       | \$195.0        | 13%            | \$2104.0        | 3.2%           |
| 2016                       | \$221.4        | 13%            | \$2295.0        | 9.1%           |
| 2017                       | \$249.7        | 13%            | \$2651.0        | 15.5%          |
| 2018                       | \$274.0        | 10%            | \$2701.0        | 6.3%           |
| 2019                       | \$302.6        | 10%            | \$2871.0        | 1.9%           |
| 2020                       | \$324.2        | 7%             | \$2623.0        | −8.6%          |
| <b>Average (2011–2020)</b> | <b>\$215.2</b> | <b>11%</b>     | <b>\$2279.2</b> | <b>4.3%</b>    |

Source: <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=BD>

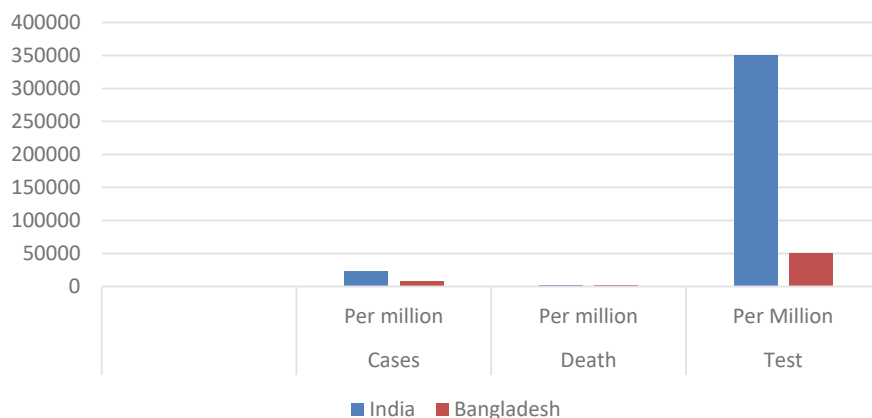
**Table 2A** GDP (Projected) –In Billion US Dollar**Relative GDP Size - Projected****Table 3** T-test of GDP assuming unequal variances

|                              | Bangladesh  | India     |
|------------------------------|-------------|-----------|
| Mean                         | 215.195     | 2279.2    |
| Variance                     | 4983.128517 | 162,574.4 |
| Observations                 | 10          | 10        |
| Hypothesized mean difference | 0           |           |
| df                           | 10          |           |
| t Stat                       | 15.94515598 |           |
| P(T ≤ t) one-tail            | 9.70455E-09 |           |
| t Critical one-tail          | 1.812461123 |           |
| P(T ≤ t) two-tail            | 1.94091E-08 |           |
| t critical two-tail          | 2.228138852 |           |

**Table 4** Corona virus effect in India & Bangladesh as of August 13, 2021

| Country          | Total cases | Total death | Total recovered | Active cases | Total cases/1M pop | Deaths/1M pop | Tests/1M pop |
|------------------|-------------|-------------|-----------------|--------------|--------------------|---------------|--------------|
| India            | 32,155,827  | 430,762     | 31,330,507      | 394,558      | 23,049             | 309           | 350,844      |
| Bangladesh       | 1,405,333   | 23,810      | 1,273,522       | 108,001      | 8,440              | 143           | 50,098       |
| Bangladesh/India | 4%          | 6%          | 4%              | 27%          | 37%                | 46%           | 14%          |

Source: <https://www.worldometers.info/coronavirus/>



**Fig. 1** Corona virus effect in India & Bangladesh as of August 13, 2021

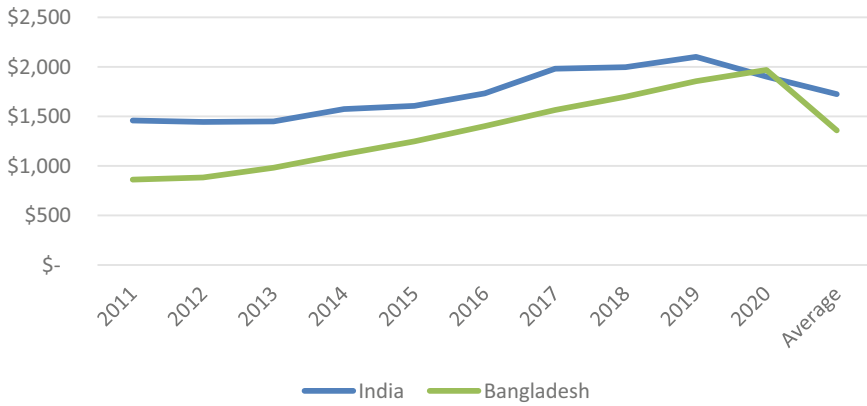
### 4.3 GDP per Capita

Table 5 and Fig. 2 show that during 2011–2020, GDP per capita in India grew 3% on average while Bangladesh witnessed an impressive 10% growth. It is confirmed from Table 2 above that during the same period, average GDP growth in India was 4.3% compared to 11% in Bangladesh. From a governance point of view, GDP per capita is a good indicator where Bangladesh achieved better performance in terms of percent change of GDP per capita during 2011–2020. The increase began in the year 2013 and peaked in 2014. India posted the highest growth in 2017 while Corona 19 effect was severe in 2020 giving a reverse growth of 10%. It is observable that

**Table 5** GDP per capita (US\$)

| Year    | India | % change | Bangladesh | Percent change |
|---------|-------|----------|------------|----------------|
| 2011    | 1458  |          | 862        |                |
| 2012    | 1444  | –1%      | 883        | 2%             |
| 2013    | 1450  | 0%       | 982        | 11%            |
| 2014    | 1574  | 9%       | 1119       | 14%            |
| 2015    | 1606  | 2%       | 1248       | 12%            |
| 2016    | 1733  | 8%       | 1402       | 12%            |
| 2017    | 1981  | 14%      | 1564       | 12%            |
| 2018    | 1997  | 1%       | 1698       | 9%             |
| 2019    | 2101  | 5%       | 1856       | 9%             |
| 2020    | 1901  | –10%     | 1969       | 6%             |
| Average | 1725  | 3%       | 1358       | 10%            |

Source: World Bank



**Fig. 2** GDP per capita

while GDP growth was  $-8.6\%$ , GDP per capita decline was steeper ( $10\%$ ). Except 2012 & 2020, Bangladesh growth in this important indicator was never less than  $9\%$ . In terms of dollar value of GDP per capita, India consistently exceeded Bangladesh (including average value over the decade of 2011–2020) except in the year 2020 when Bangladesh GDP per capita of \$1969 was marginally higher ( $4\%$ ) than India (\$1901) as the World Bank data above reveal. While consistent higher dollar value for India indicates its strength of GDP growth, Bangladesh should accelerate its efforts to achieve higher GDP growth by sector including more effective birth control measures through incentives. As GDP per capita (nominal) is obtained after value of goods and services of a country are divided by the population, it is important to examine its underlying demographic dynamics i.e., birth rate, death rate and the resulting net change in total population.

As seen in Table 6, the p-value in t-test shows a statistically significant difference between India & Bangladesh as far as GDP per capita is concerned.

**Table 6** T-test of GDP per capita assuming unequal variances

|                              | India        | Bangladesh |
|------------------------------|--------------|------------|
| Mean                         | 1724.5       | 1358.3     |
| Variance                     | 63,863.38889 | 162,614.9  |
| Observations                 | 10           | 10         |
| Hypothesized mean difference | 0            |            |
| df                           | 15           |            |
| t Stat                       | 2.433352647  |            |
| P(T ≤ t) one-tail            | 0.013969785  |            |
| t critical one-tail          | 1.753050356  |            |
| P(T ≤ t) two-tail            | 0.02793957   |            |
| t critical two-tail          | 2.131449546  |            |

**Table 6A** Per capita income (projected) – In US Dollar

| Year                      | Bangladesh  | India      |
|---------------------------|-------------|------------|
| 2021                      | 2259        | 2184       |
| 2022                      | 2497        | 2284       |
| 2023                      | 2759        | 2389       |
| 2024                      | 3050        | 2498       |
| 2025                      | 3370        | 2612       |
| 2026                      | 3724        | 2732       |
| 2027                      | 4116        | 2857       |
| 2028                      | 4549        | 2987       |
| 2029                      | 5027        | 3124       |
| 2030                      | 5555        | 3267       |
| <b>% change 2021-2030</b> | <b>182%</b> | <b>72%</b> |

**Fig 2A** Per capita income (projected) –In US Dollar India/Bangladesh t-test of GDP per capita assuming unequal variances

|                              | India        | Bangladesh  |
|------------------------------|--------------|-------------|
| Mean                         | 2693.576858  | 3664.310879 |
| Variance                     | 123522.4781  | 1167440.987 |
| Observations                 | 10           | 10          |
| Hypothesized mean difference | 0            |             |
| df                           | 11           |             |
| t Stat                       | -2.701738271 |             |
| P(T ≤ t) one-tail            | 0.010296341  |             |
| t critical one-tail          | 1.795884819  |             |
| P(T ≤ t) two-tail            | 0.020592682  |             |
| t critical two-tail          | 2.20098516   |             |

## 5 Calculation of GDP—Expenditure Method

The expenditure method is the most commonly used approach for estimating GDP which is:

$$\text{GDP} = C + I + G + (X - M)$$

Where C = Consumer spending on goods and services; I = Investor spending on business capital goods; G = Government spending on public goods & services; X = exports; M = imports.

Let us examine how the above components of GDP reflect in the case of Bangladesh & India during the period of 2011–2020.

## 5.1 Consumer Spending on Goods and Services

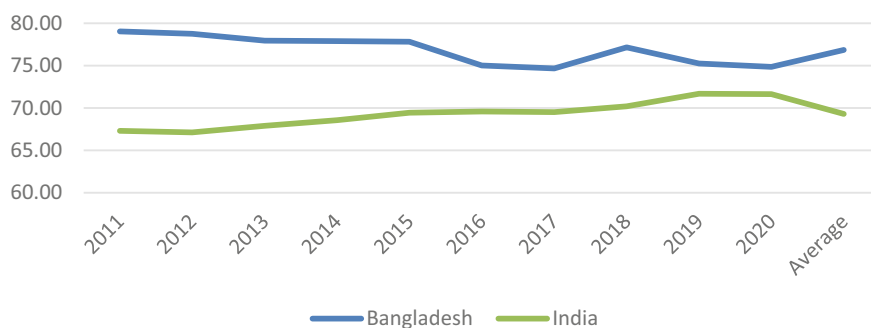
Table 7 and Fig. 3 show that on average, Bangladesh share of consumer consumption to GDP was 11% higher than India. During pandemic crisis (2020), consumer spending to GDP remained strong in both economies. During the decade, Bangladesh contribution of consumer spending to GDP was in the range of 74.67–79.04% while India's share ranged from 67.12 to 71.68% (remained robust at 71.48% in 2020 during pandemic). The p value in Table 8 is less than 0.05, revealing a significant difference.

However, World Bank data show that shares of consumer spending to GDP in 2019 were 81.83% for United States, 56.02% for China, 83.11% for United Kingdom, 94.59% for Pakistan, and 74.62% for Vietnam. Therefore it is not rational to identify

**Table 7** Consumer spending on goods & services (% GDP)

| Year    | Bangladesh | % change | India | % change |
|---------|------------|----------|-------|----------|
| 2011    | 79.04      |          | 67.31 |          |
| 2012    | 78.75      | −0.37%   | 67.12 | −0.27%   |
| 2013    | 77.95      | −1.01%   | 67.91 | 1.17%    |
| 2014    | 77.90      | −0.06%   | 68.56 | 0.97%    |
| 2015    | 77.83      | −0.09%   | 69.44 | 1.28%    |
| 2016    | 75.03      | −3.60%   | 69.59 | 0.21%    |
| 2017    | 74.67      | −0.48%   | 69.52 | 0.09%    |
| 2018    | 77.17      | 3.34%    | 70.20 | 0.97%    |
| 2019    | 75.25      | −2.49%   | 71.68 | 2.12%    |
| 2020    | 74.87      | −0.51%   | 71.64 | −0.07%   |
| Average | 76.85      |          | 69.30 |          |

Data Source: The World Bank



**Fig. 3** Consumer spending (% GDP)



**Table 8** T-test of consumer spending assuming unequal variances

|                              | Bangladesh  | India       |
|------------------------------|-------------|-------------|
| Mean                         | 0.768816892 | 0.692957672 |
| Variance                     | 0.000311951 | 0.000258741 |
| Observations                 | 10          | 10          |
| Hypothesized mean difference | 0           |             |
| df                           | 18          |             |
| t stat                       | 10.04170272 |             |
| P(T ≤ t) one-tail            | 4.18829E-09 |             |
| t critical one-tail          | 1.734063607 |             |
| P(T ≤ t) two-tail            | 8.37658E-09 |             |
| t critical two-tail          | 2.10092204  |             |

a certain ratio to be considered ideal. The ratio varies with the underlying cycle of the individual country's economic dynamism.

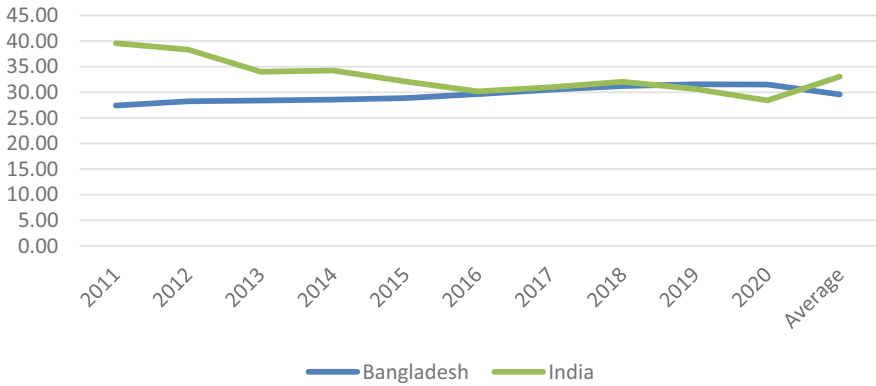
## 5.2 Investor Spending on Business Capital Goods

Table 9 and Fig. 4 show that on average, India's share of business investment to GDP was 12% higher than Bangladesh. This explained part of the reason why average GDP per capita in India was higher than Bangladesh (\$1725 against \$1358—Table 5 and Fig. 2). But a closer look of data in Table 9 suggests that Bangladesh consistently improved its share of business investment to GDP while India's performance showed a mixed signal. Except for the years 2014, 2017 & 2018, India's share of business

**Table 9** Business investment (% of GDP)

| Year    | Bangladesh | % change | India  | % change |
|---------|------------|----------|--------|----------|
| 2011    | 27.42      |          | 39.59  |          |
| 2012    | 28.26      | 3.1%     | 38.347 | -3.1%    |
| 2013    | 28.39      | 0.5%     | 34.023 | -11.3%   |
| 2014    | 28.58      | 0.7%     | 34.268 | 0.7%     |
| 2015    | 28.89      | 1.1%     | 32.117 | -6.3%    |
| 2016    | 29.65      | 2.7%     | 30.173 | -6.1%    |
| 2017    | 30.51      | 2.9%     | 30.982 | 2.7%     |
| 2018    | 31.24      | 2.4%     | 32.07  | 3.5%     |
| 2019    | 31.57      | 1.1%     | 30.664 | -4.4%    |
| 2020    | 31.54      | -0.1%    | 28.42  | -7.3%    |
| Average | 29.60      |          | 33.06  |          |

Data Source: The World Bank



**Fig. 4** Business investment (GDP %)

investment to GDP declined. While 2020’s unexpected performance in India was largely due to pandemic, a decline of 4.4% in 2019 is a case India should examine. On the other hand, Bangladesh consolidated its share of business investment at 31.5% in the years 2019 & 2020 compared to India’s rate of 30.7 and 28.42% respectively that gave Bangladesh its dividend when World Bank reported a higher GDP per capita than India. To be more competitive Bangladesh should strive for larger business investment as a percent of GDP in future. As seen in Table 10, a p-value less than 0.05 suggests a statistically significant difference between India & Bangladesh.

**Table 10** T-test of investment as % of GDP assuming unequal variances

|                              | Bangladesh   | India       |
|------------------------------|--------------|-------------|
| Mean                         | 29.6042      | 33.0654     |
| Variance                     | 2.298687956  | 12.75246982 |
| Observations                 | 10           | 10          |
| Hypothesized mean difference | 0            |             |
| df                           | 12           |             |
| t Stat                       | -2.821251096 |             |
| P(T ≤ t) one-tail            | 0.007712048  |             |
| t critical one-tail          | 1.782287556  |             |
| P(T ≤ t) two-tail            | 0.015424096  |             |
| t critical two-tail          | 2.17881283   |             |

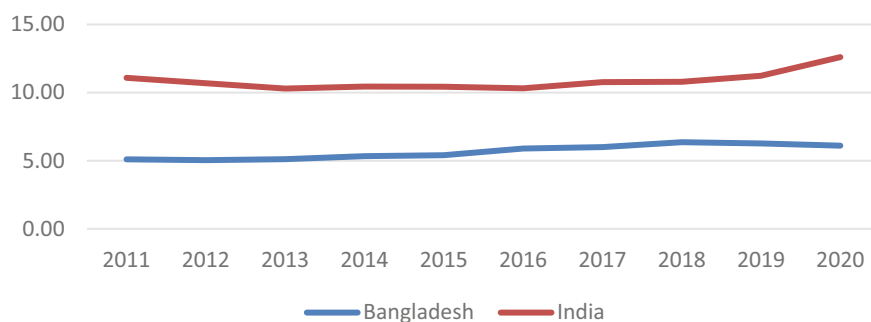
### 5.3 Government Expenditure (% of GDP)

Table 11 and Fig. 5 show that on average, Bangladesh share of government expenditure to GDP was about half of India. In other words, Bangladesh governance expenditure was more cost effective than India, every year from 2011–2020. In India, a 12% higher government expenditure to GDP in 2020 compared to 2019 was attributed to severe pandemic effect. In Bangladesh, NGOs provide significant services for public health and community activities that is one of the reasons why Bangladesh share of government expenditure to GDP was significantly lower than India. However, World Bank data show that shares of government spending to GDP in 2019 were 13.97% for United States, 16.8% for China, 19.07% for United Kingdom, 11.73% for Pakistan, and 6.5% for Vietnam. The above data indicate that Bangladesh performance was closer to Vietnam's. A volume and diversity of government services impact directly

**Table 11** Government expenditure (% of GDP)

| Year    | Bangladesh | % change | India  | % change |
|---------|------------|----------|--------|----------|
| 2011    | 5.10       |          | 11.08  |          |
| 2012    | 5.04       | −1%      | 10.684 | −4%      |
| 2013    | 5.12       | 2%       | 10.295 | −4%      |
| 2014    | 5.34       | 4%       | 10.441 | 1%       |
| 2015    | 5.40       | 1%       | 10.428 | 0%       |
| 2016    | 5.89       | 9%       | 10.309 | −1%      |
| 2017    | 6.0        | 2%       | 10.767 | 4%       |
| 2018    | 6.36       | 6%       | 10.789 | 0%       |
| 2019    | 6.27       | −1%      | 10.228 | 4%       |
| 2020    | 6.10       | −3%      | 12.601 | 12%      |
| Average | 5.66       |          | 10.862 |          |

Data Source: The World Bank



**Fig. 5** Government expenditure (% of GDP)

**Table 12** T-test of government expenditure as % of GDP assuming unequal variances

|                              | Bangladesh   | India       |
|------------------------------|--------------|-------------|
| Mean                         | 5.661        | 10.8622     |
| Variance                     | 0.265245111  | 0.471614844 |
| Observations                 | 10           | 10          |
| Hypothesized mean difference | 0            |             |
| df                           | 17           |             |
| t stat                       | -19.16068698 |             |
| P(T ≤ t) one-tail            | 3.0117E-13   |             |
| t critical one-tail          | 1.739606726  |             |
| P(T ≤ t) two-tail            | 6.0234E-13   |             |
| t critical two-tail          | 2.109815578  |             |

the level of share of government expenditure to GDP. A cost-effective government operation is increasingly considered a popular slogan by the extreme proponents of small government. It may be noted that in the article “Get Society Rich Quick: The Ideal Level of Government Spending”, <https://thinkbynumbers.org/economics/ideal-level-of-government-spending/> (April 17, 2012), a reference was made to the relationship between size of government and economic growth based on data of twenty three long standing members of the Organization for Economic Cooperation and Development. It reveals that “a 10% increase in government expenditure as a share of GDP reduces the annual rate of growth by about 1%”. The P-value in Table 12 reveals a significant difference between India and Bangladesh.

#### 5.4 Net Export of Goods and Services (% of GDP)

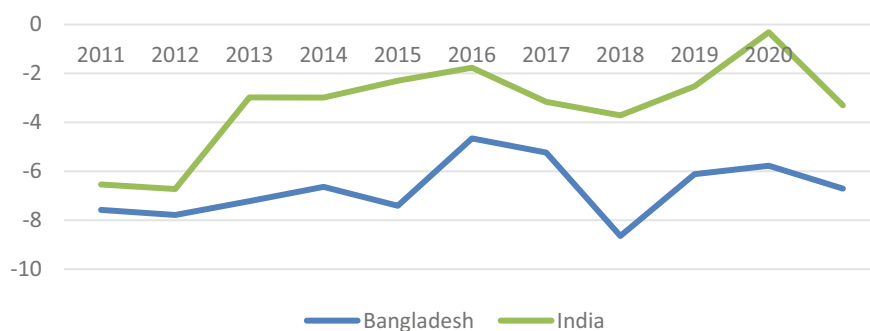
Table 13 and Fig. 6 show that on average during the decade India’s share of net export of goods and services to GDP was 51% higher than Bangladesh (both had negative contribution—India being -3.30% and Bangladesh -6.7%). This indicates the face of relative strength of Indian economy compared to Bangladesh. During the pandemic year of 2020, the net impact of export & import (goods & services together) to GDP was only -0.316 for India compared to -5.77 for Bangladesh. In other words, Bangladesh’s performance in this important indicator was significantly lower than India and policy makers in the country should analyze in depth all the variables responsible for this weak performance and address the issue.

As seen in Table 14, the p value shows a statistically significant difference between India & Bangladesh in terms of net export of goods & services to GDP.

**Table 13** Net export of goods & services (% of GDP)

| Year    | Bangladesh | India  |
|---------|------------|--------|
| 2011    | -7.579     | -6.54  |
| 2012    | -7.787     | -6.725 |
| 2013    | -7.221     | -2.982 |
| 2014    | -6.634     | -2.986 |
| 2015    | -7.412     | -2.297 |
| 2016    | -4.655     | -1.766 |
| 2017    | -5.232     | -3.159 |
| 2018    | -8.643     | -3.716 |
| 2019    | -6.116     | -2.628 |
| 2020    | -5.773     | -0.316 |
| Average | -6.705     | -3.301 |

Data Source: The World Bank

**Fig. 6** Net export of goods & services (% of GDP)**Table 14** T-test of net export of goods & services as % of GDP assuming unequal variances

|                              | Bangladesh   | India       |
|------------------------------|--------------|-------------|
| Mean                         | -6.7052      | -3.3015     |
| Variance                     | 1.5610404    | 3.942251611 |
| Observations                 | 10           | 10          |
| Hypothesized mean difference | 0            |             |
| df                           | 15           |             |
| t Stat                       | -4.588175229 |             |
| P(T ≤ t) one-tail            | 0.000177608  |             |
| t critical one-tail          | 1.753050356  |             |
| P(T ≤ t) two-tail            | 0.000355217  |             |
| t critical two-tail          | 2.131449546  |             |

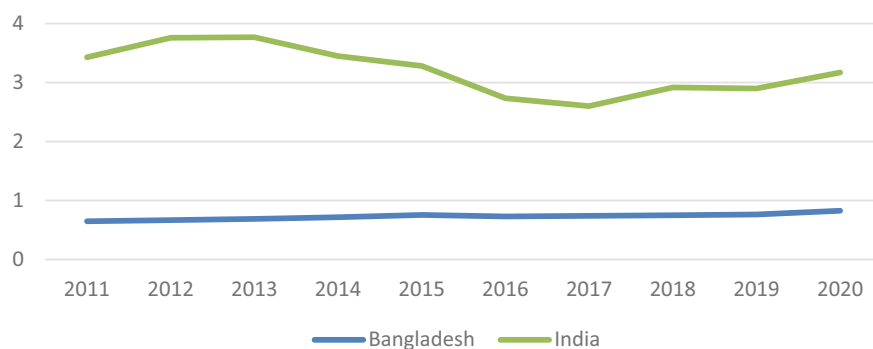
## 6 Remittances

Table 15 and Fig. 7 show that Bangladesh share of personal remittances to GDP was about four & half times less than of India. From 2011–2020, Bangladesh experienced positive changes while except three years, India saw negative changes in this indicator. It suggests that Bangladesh foreign wage earners' mark in the economic growth was continuous and encouraging. During the pandemic year 2020 both in India and Bangladesh, changes shares of personal remittances received were second highest and the highest respectively (in the comparable decade). At \$83.149 billion, India topped the global list while Bangladesh's \$21.75 billion showed that India in 2020 earned 3.8 times higher remittances compared to Bangladesh. It is interesting to note that Migration Data Portal <https://migrationdataportal.org/themes/remittances> reports that “in terms of remittances as a share of gross domestic product, by contrast,

**Table 15** Personal remittances, received (GDP %)

| Year           | Bangladesh   | Change | India       | Change |
|----------------|--------------|--------|-------------|--------|
| 2011           | 0.648        |        | 3.43        |        |
| 2012           | 0.67         | 3%     | 3.76        | 10%    |
| 2013           | 0.69         | 3%     | 3.77        | 0%     |
| 2014           | 0.72         | 4%     | 3.45        | −8%    |
| 2015           | 0.75         | 5%     | 3.28        | −5%    |
| 2016           | 0.73         | −3%    | 2.73        | −17%   |
| 2017           | 0.74         | 1%     | 2.60        | −5%    |
| 2018           | 0.75         | 1%     | 2.92        | 12%    |
| 2019           | 0.76         | 2%     | 2.90        | −1%    |
| 2020           | 0.83         | 8%     | 3.17        | 9%     |
| <b>Average</b> | <b>0.728</b> |        | <b>3.20</b> |        |

Data Source: The World Bank



**Fig. 7** Personal remittances, received (GDP %)

**Table 16** T-Test of personal remittances received as % of GDP assuming unequal variances

|                              | Bangladesh   | India       |
|------------------------------|--------------|-------------|
| Mean                         | 0.728        | 3.2007      |
| Variance                     | 0.002656667  | 0.167249789 |
| Observations                 | 10           | 10          |
| Hypothesized mean difference | 0            |             |
| df                           | 9            |             |
| t Stat                       | -18.96996322 |             |
| P(T ≤ t) one-tail            | 7.23348E-09  |             |
| t critical one-tail          | 1.833112933  |             |
| P(T ≤ t) two-tail            | 1.4467E-08   |             |
| t critical two-tail          | 2.262157163  |             |

the top five recipients in 2020 were smaller economies: Tongo (38), Lebanon (33%), Kyrgyz Republic (29%), Tajikistan (27%) and El Salvador (24%)”.

The P value in Table 16 reveals a significant difference of personal remittances, received to GDP between India and Bangladesh.

## 7 Employment Data

Table 17 and Fig. 8 show that with more than seven times larger average labor force (2011–2020), India’s average growth (0.20%) was lower than Bangladesh (1.6%). India’s highest annual growth was posted in the year 2019 (1.48%) followed by a significant decline in 2020 (-4.66%). Both Bangladesh & India were impacted severely by Corona Virus resulting in a slightly steeper decline for India than

**Table 16A** Personal remittances projected (current US\$ - in Million)

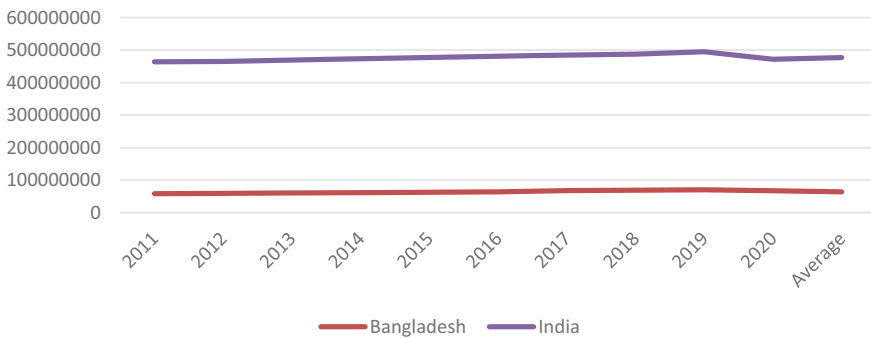
| Year                      | Bangladesh | India      |
|---------------------------|------------|------------|
| 2021                      | 19564      | 84740      |
| 2022                      | 20528      | 87574      |
| 2023                      | 21541      | 90504      |
| 2024                      | 22603      | 93531      |
| 2025                      | 23718      | 96660      |
| 2026                      | 24888      | 99893      |
| 2027                      | 26115      | 103234     |
| 2028                      | 27403      | 106688     |
| 2029                      | 28755      | 110256     |
| 2030                      | 30173      | 113945     |
| <b>% change 2021-2030</b> | <b>39%</b> | <b>37%</b> |

Bangladesh in 2020 (−4.66% in India compared to −4.2% in Bangladesh). Table 17 further reveals that Bangladesh consistently witnessed around 2% labor force growth while Indian performance in this indicator was barely 1% in the time window of 2011–2020. Job creation in Bangladesh peaked in 2017 (5.9%) when it absorbed greater percent of its labor force in service sector while India had its highest growth in 2019 (1.48%). A relatively higher employment growth in Bangladesh during a decade of 2011–2020 helped it to launch the pre-condition for takeoff for development while India needs to strengthen its efforts for job creation. The p-value in Table 18 reveals that employment data of India and Bangladesh would have occurred under the null hypothesis.

**Table 17** Total labor force by year

| Year    | Bangladesh | % change | India       | % change | Indian labor force X times larger than Bangladesh |
|---------|------------|----------|-------------|----------|---|
| 2011    | 58,198,463 |          | 463,753,497 |          | 7.97  |
| 2012    | 59,278,816 | 1.9%     | 464,760,493 | 0.22%    | 7.84  |
| 2013    | 60,365,191 | 1.8%     | 469,135,490 | 0.94%    | 7.77  |
| 2014    | 61,481,328 | 1.8%     | 473,313,171 | 0.89%    | 7.70  |
| 2015    | 62,481,328 | 1.6%     | 477,296,180 | 0.84%    | 7.64  |
| 2016    | 63,705,497 | 2.0%     | 481,187,327 | 0.82%    | 7.55  |
| 2017    | 67,462,312 | 5.9%     | 484,539,161 | 0.70%    | 7.18  |
| 2018    | 68,844,397 | 2.0%     | 487,539,161 | 0.62%    | 7.08  |
| 2019    | 70,160,182 | 1.9%     | 494,732,703 | 1.48%    | 7.05  |
| 2020    | 67,225,702 | −4.2%    | 471,688,990 | −4.66%   | 7.02  |
| Average | 63,920,322 | 1.6%     | 476,794,617 | 0.20%    | 7.46  |

Data Source: The World Bank



**Fig. 8** Total labor force



**Table 18** T-test of employment assuming unequal variances

|                              | Bangladesh   | India         |
|------------------------------|--------------|---------------|
| Mean                         | 63,920,321.6 | 476,794,617.3 |
| Variance                     | 1.79601E+13  | 1.03165E+14   |
| Observations                 | 10           | 10            |
| Hypothesized mean difference | 0            |               |
| df                           | 12           |               |
| t stat                       | -118.6315904 |               |
| P(T ≤ t) one-tail            | 4.31423E-20  |               |
| t critical one-tail          | 1.782287556  |               |
| P(T ≤ t) two-tail            | 8.62845E-20  |               |
| t critical two-tail          | 2.17881283   |               |

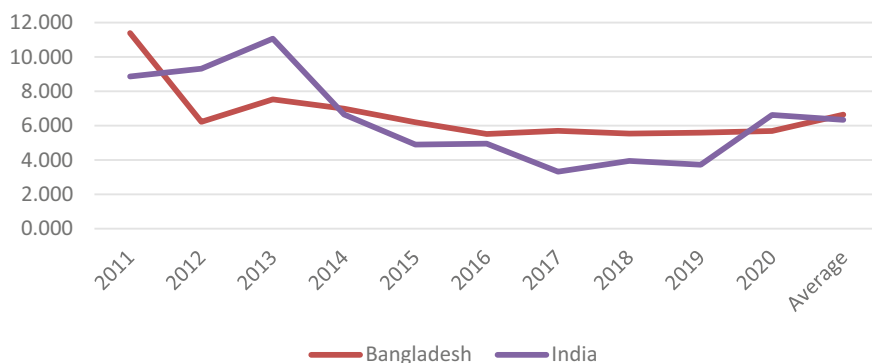
## 8 Inflation

Table 19 and Fig. 9 indicate that during the decade 2011–2020, average inflation was in the same level in both countries (over 6%). However, India's monetary policies in controlling inflation during 2014–2019 were more effective than Bangladesh. Nevertheless, during the pandemic year 2020 Bangladesh managed inflation better than India (5.7% against 6.6%) showing a 16% better performance. The P value in Table 20 reveals no significant difference in inflation between India and Bangladesh.

**Table 19** Inflation, consumer prices (annual %)

| Year           | Bangladesh  | Change | India       | Change |
|----------------|-------------|--------|-------------|--------|
| 2011           | 11.39       |        | 8.85        |        |
| 2012           | 6.22        | -45%   | 9.31        | 5%     |
| 2013           | 7.53        | 21%    | 11.06       | 11%    |
| 2014           | 6.99        | -7%    | 6.65        | -40%   |
| 2015           | 6.19        | -11%   | 4.9         | -26%   |
| 2016           | 5.51        | -11%   | 4.95        | 1%     |
| 2017           | 5.7         | 3%     | 3.32        | -33%   |
| 2018           | 5.54        | -3%    | 3.95        | 19%    |
| 2019           | 5.59        | 1%     | 3.72        | -6%    |
| 2020           | 5.69        | 2%     | 6.62        | 78%    |
| <b>Average</b> | <b>6.63</b> |        | <b>6.33</b> |        |

Data Source: The World Bank



**Fig. 9** Inflation, consumer prices (annual %)

**Table 20** T-test of inflation assuming unequal variances

|                              | Bangladesh  | India       |
|------------------------------|-------------|-------------|
| Mean                         | 6.6357      | 6.3343      |
| Variance                     | 3.246499122 | 7.042391789 |
| Observations                 | 10          | 10          |
| Hypothesized mean difference | 0           |             |
| df                           | 16          |             |
| t stat                       | 0.297138527 |             |
| P(T ≤ t) one-tail            | 0.385091866 |             |
| t critical one-tail          | 1.745883676 |             |
| P(T ≤ t) two-tail            | 0.770183733 |             |
| t critical two-tail          | 2.119905299 |             |

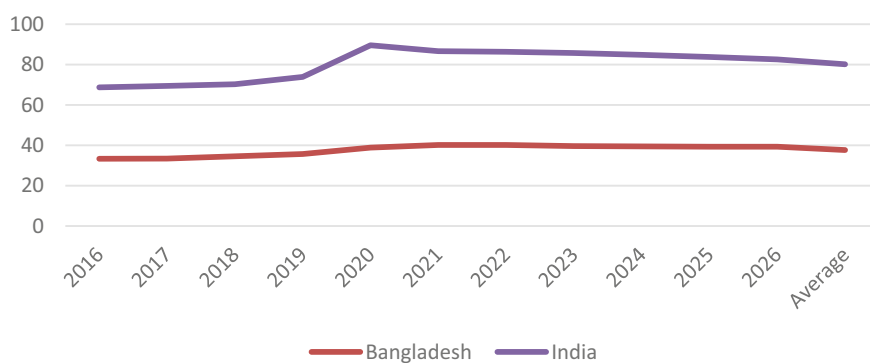
## 9 National Debt

Table 21 and Fig. 10 indicate that during the period 2016–2026, Bangladesh's average debt ratio to GDP is expected to be 213%, lower than India. Data developed by Aaron O'Neill for 2020 and beyond up to 2026 indicate this fact. The data further suggest that debt burden will start declining marginally for both countries except for Bangladesh in the year 2021 as it is estimated to rise by 3.35%. During 2020 pandemic induced year national debt to GDP increased in both Bangladesh (8.88%) and India (21.21%). Both countries are managing their national debt as part of their macroeconomic policies to achieve overall economic development suitable to their strategies and priorities. For example, it is understood that USA being the top developed country is expected to have a national debt to GDP ratio at 106.7%. The P value in Table 22 reveals a significant difference between India and Bangladesh in terms of national debt to GDP.

**Table 21** National debt to GDP (%)

| Year           | Bangladesh   | % change | India        | % change |
|----------------|--------------|----------|--------------|----------|
| 2016           | 33.33        |          | 68.71        |          |
| 2017           | 33.38        | 0.15%    | 69.46        | 1.09%    |
| 2018           | 34.57        | 3.57%    | 70.24        | 1.12%    |
| 2019           | 35.69        | 3.24%    | 73.89        | 5.20%    |
| 2020—Proj.     | 38.86        | 8.88%    | 89.56        | 21.21%   |
| 2021—Proj.     | 40.16        | 3.35%    | 86.6         | -3.31%   |
| 2022—Proj.     | 40.16        | 0%       | 86.31        | -0.33%   |
| 2023—Proj.     | 39.64        | -1.29%   | 85.71        | -0.70%   |
| 2024—Proj.     | 39.43        | -0.53%   | 84.83        | -1.03%   |
| 2025—Proj.     | 39.31        | -0.30%   | 83.77        | -1.25%   |
| 2026—Proj.     | 39.33        | 0.05%    | 82.57        | -1.43%   |
| <b>Average</b> | <b>37.62</b> |          | <b>80.15</b> |          |

Data Source: <https://www.statista.com/statistics/438425/national-debt-of-bangladesh-in-relation-to-gross-domestic-product-gdp/>  
<https://www.statista.com/statistics/271319/national-debt-of-india-in-relation-to-gross-domestic-product-gdp/>

**Fig. 10** National debt to GDP (%)

## 10 Corruption Perceptions Index

According to Transparency International, the lower the index, the better. In other words, the higher is the ranking the worse is the perception for corruption of the country in comparison. “It uses a scale of zero (highly corrupt) to 100 (very clean). Score and ranking are reversely related. For example, in the year 2020, India ranked 86 when its score was 40. On the other hand, Bangladesh ranked 146 when its score was 26. It is observed that in the world Ranking of Corruption Perceptions Index (CPI), Bangladesh consistently during the decade stood far above India. The above

**Table 22** T-test of national debt to GDP assuming unequal variances

|                              | Bangladesh   | India    |
|------------------------------|--------------|----------|
| Mean                         | 37.62363636  | 80.15    |
| Variance                     | 7.698645455  | 62.24184 |
| Observations                 | 11           | 11       |
| Hypothesized mean difference | 0            |          |
| df                           | 12           |          |
| t stat                       | -16.86515239 |          |
| P(T ≤ t) one-tail            | 5.05219E-10  |          |
| t critical one-tail          | 1.782287556  |          |
| P(T ≤ t) two-tail            | 1.01044E-09  |          |
| t critical two-tail          | 2.17881283   |          |

**Table 23** World ranking of corruption perceptions index-CPI

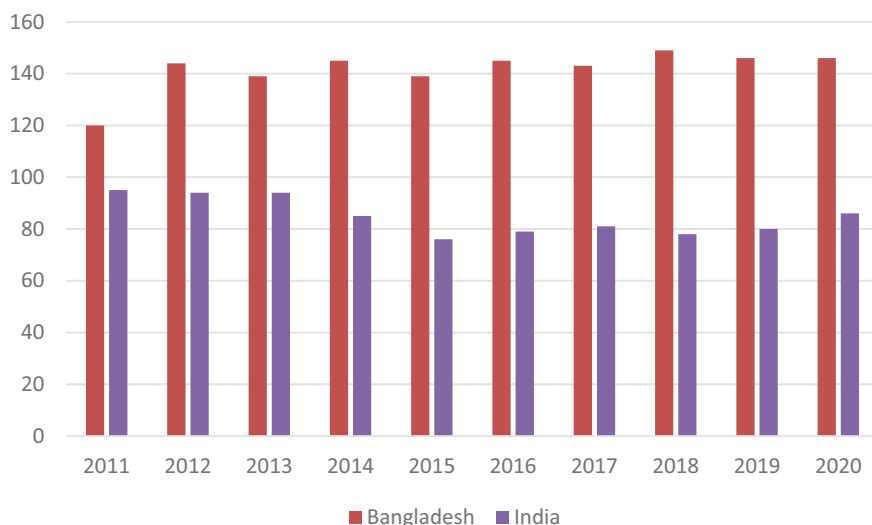
| Year | Bangladesh | India |
|------|------------|-------|
| 2011 | 120        | 95    |
| 2012 | 144        | 94    |
| 2013 | 139        | 94    |
| 2014 | 145        | 85    |
| 2015 | 139        | 76    |
| 2016 | 145        | 79    |
| 2017 | 143        | 81    |
| 2018 | 149        | 78    |
| 2019 | 146        | 80    |
| 2020 | 146        | 86    |

Data Source: Transparency International

rankings suggest that while both the countries should make increased improvement in their CPI ranking, Bangladesh must address this good governance indicator on a priority basis since it is directly linked to its future economic health also (Table 23 and Fig. 11).

## 11 Poverty Headcount Ratio (% of Population)

It is evident from Tables 24, 25 and Figs. 12, 13 that within a window of sixteen years, Bangladesh was successful to reduce its poverty headcount ratio by 50% while within a period six years India reduced it by 41%. Both Bangladesh & India were able to achieve significant improvements in this important indicator. However, India has over 306 million people under national poverty lines. It remains a major challenge to Indian



**Fig. 11** World ranking of corruption perceptions index-CPI

**Table 24** Bangladesh's Poverty Headcount Ratio at national poverty lines (% of population)

| Year | Headcount ratio | % change (cumulative) |
|------|-----------------|-----------------------|
| 2000 | 48.9            |                       |
| 2005 | 40              | -18%                  |
| 2010 | 31.5            | -36%                  |
| 2016 | 24.3            | -50%                  |

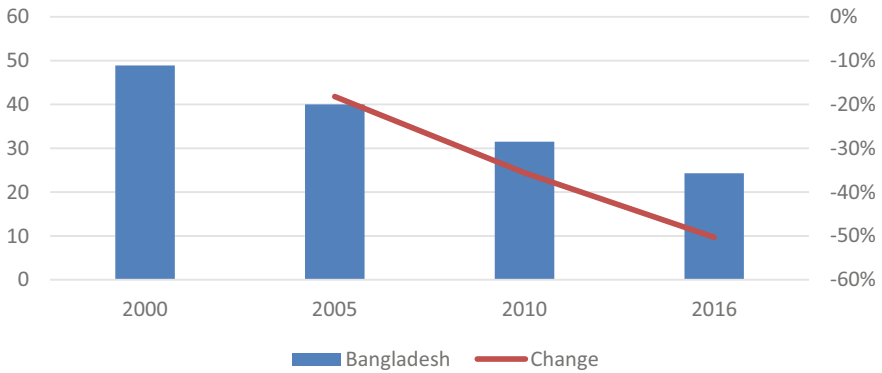
Data Source: The World Bank

**Table 25** India's Poverty Headcount Ratio at national poverty lines (% of population)

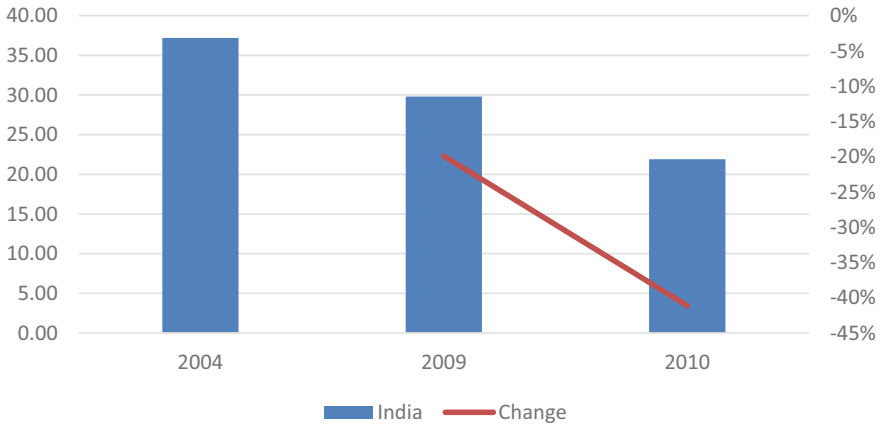
| Year | Headcount ratio | % change (cumulative) |
|------|-----------------|-----------------------|
| 2004 | 37.20           |                       |
| 2009 | 29,80           | -20%                  |
| 2010 | 21.90           | -41%                  |

Data Source: The World Bank

policy makers and needs adequate and appropriate planning to address the issue. A good number of economists give credit for Bangladesh's success in this respect to public private partnership especially to non- profit NGOs, Grameen Bank and RDS of Islami Bank Bangladesh Limited. In our recently published paper "A Comparative Rural Development Scheme of Islami Bangladesh Limited and Grameen Bank: A Cost Effective Institutional Mechanism to Rural Development for the Emerging Economics" (Please refer to the book *The Importance of New Technologies and Entrepreneurship in Business Development: In The Context of Economic Diversity in Developing Countries* Editors: Alareeni, Bahaaeddin, Hamdan, Allam, Elgedawy,



**Fig. 12** Bangladesh’s Poverty Headcount Ratio at national poverty lines (% of population)



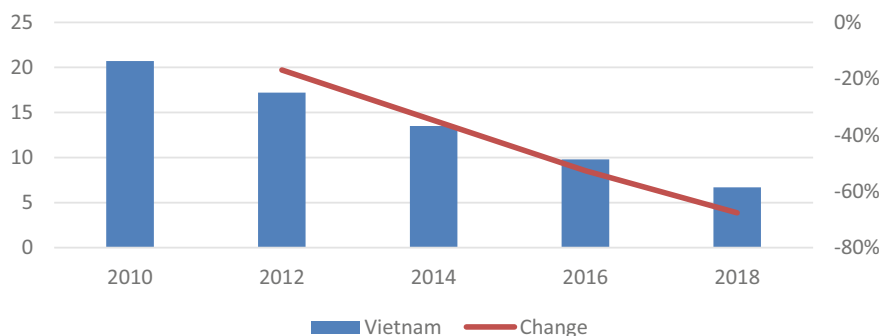
**Fig. 13** India’s Poverty Headcount Ratio at national poverty lines (% of population)

Isla-ISBN 978-3-030-69,221-6 (Eds.published by the Springer), it was suggested that Bangladesh being a Muslim majority country if mobilizes collection (voluntary) of zakat money (religious charity) and distributes through its several Islamic Bank networks, the measures are expected to play better result in poverty reduction of the country. For interest, I have presented data of a recent Asian important player Vietnam (Table 26 and Fig. 14) to compare its performance in poverty reduction to Bangladesh and India. It is interesting to note that Vietnam’s performance in poverty reduction was impressive at 68% within a time frame of 18 years.

**Table 26** Vietnam's Poverty Headcount Ratio at national poverty lines (% of population)

| Year | Headcount ratio | % change (cumulative) |
|------|-----------------|-----------------------|
| 2000 | 20.7            |                       |
| 2012 | 17.2            | -17%                  |
| 2014 | 13.5            | -35%                  |
| 2016 | 9.8             | -53%                  |
| 2018 | 6.7             | -68%                  |

Data Source: The World Bank

**Fig. 14** Vietnam's Poverty Headcount Ratio at national poverty lines (% of population)

## 12 Interesting Facts and Findings

Even in a market based free economy, the need for increased government spending became popular to the politicians as well as to the voters. It is the policy makers to determine the ceiling and the floor of the balance to achieve the optimum level of economic development. Therefore, the statement “a 10% increase in government expenditure as a share of GDP reduces the annual rate of growth by about 1%.” by OCED needs a critical reevaluation for policy consideration.

## 13 Limitation

We have used components of GDP from the expenditure reported by the World Bank. Net export of goods and services was not reported by World Bank data base. We calculated the net export of goods & services from the reported export of goods and services and the reported import of goods and services. However, when individual component percent were added together, they exceed 100% both for Bangladesh (104–107) & India (108–112). World Bank has posted the following explanation that may explain the possible reason for this anomaly.

“Gross domestic product (GDP) from the expenditure side is made up of household final consumption expenditure, general government final consumption expenditure, gross capital formation (private and public investment in fixed assets, changes in inventories, and net acquisitions of valuables), and net exports (exports minus imports) of goods and services. Such expenditures are recorded in purchaser prices and include net taxes on products.

Because policymakers have tended to focus on fostering the growth of output, and because data on production are easier to collect than data on spending, many countries generate their primary estimate of GDP using the production approach. Moreover, many countries do not estimate all the components of national expenditures but instead derive some of the main aggregates indirectly using GDP (based on the production approach) as the control total. Data on capital formation may be estimated from direct surveys of enterprises and administrative records or based on the commodity flow method using data from production, trade, and construction activities. The quality of data on government fixed capital formation depends on the quality of government accounting systems (which tend to be weak in developing countries). Measures of fixed capital formation by households and corporations—particularly capital outlays by small, unincorporated enterprises—are usually unreliable. Estimates of changes in inventories are rarely complete but usually include the most important activities or commodities. In some countries these estimates are derived as a composite residual along with household final consumption expenditure. According to national accounts conventions, adjustments should be made for appreciation of the value of inventory holdings due to price changes, but this is not always done. In highly inflationary economies this element can be substantial”.

## 14 Recommendations for Future Research

The “Output Method” induced GDP calculation and the related analyses are omitted in this paper. Therefore, any future research project should focus on different value-added economic sectors i.e. agriculture, manufacturing, service and their sub sectors that may have specific policy recommendations to Bangladesh and India including any information of ‘productive efficiency’ identified therein.

## 15 Conclusion

Both Bangladesh and India after taking “economic liberalization” policies created effective tailwinds towards sustained economic growth. In order to consolidate the economic gains they are achieving, good governance and greater reduction of poverty are the other two major challenges they should address effectively. Politically Bangladesh is following a secular path while during Prime Minister Norendro Modi’s rule, India is patronizing extreme Hindu nationalism (Modi’s project to make Hindu India—the jantimes. Historically Bangladesh is a land where at the very dawn of everyday people wake up with a swearing sound of adhan (call for prayer, especially the Arabic statement for morning worship “prayer is better than sleep”). If Bangladesh can balance its political chemistry between secularism and its majority’s



faith-based tradition and stimulate the economy (with 100% minority right protection) in a reasonably non corrupt environment, it is expected that it will accelerate its economic wheel better. It is possibly a high time to experiment that model cautiously which I would like to name “Democracy based Muslim humanism”. For a vast non homogenous country a secular India without being a stooge of Big Brother global politics possibly is its best guide to move upward progressively and peacefully.

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# The Central Bank Digital Currency in Malaysia: A Literature Review



Normi Sham Awang Abu Bakar, Norzariyah Yahya, Irni Eliana Khairuddin, Ahmad Firdaus Zainal Abidin, Jasni Mohamad Zain, Norbik Bashah Idris, and Engku Rabiah Adawiah Engku Ali

**Abstract** Central Bank Digital Currency (CBDC) is a digital form of central bank money, and is different from traditional reserves or settlement accounts balances. In line with the digital technology era, CBDC has gained interest among the majority of the countries. Central banks in a number of countries have started experimenting, piloting, launching, and have laid their direction on CBDC. However, the development of CBDC in Malaysia is still behind compared to many other countries in the world. This paper aims to present the current status of CBDC in Malaysia. To achieve the goal, this paper explores literature reviews on CBDC, countries' milestones on CBDC and Malaysia's Central Bank stand on CBDC. This review found that Malaysia's Central Bank has no intention for the immediate plan for CBDC in Malaysia. However, Malaysia's Central Bank continues assessing the CBDC potential, especially in the digital assets and payments space. This study also found that

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N. S. Awang Abu Bakar (✉) · N. Yahya · N. B. Idris · E. R. A. Engku Ali  
International Islamic University Malaysia, 53100 Gombak, Kuala Lumpur, Malaysia  
e-mail: [nsham@iium.edu.my](mailto:nsham@iium.edu.my)

N. Yahya  
e-mail: [norzariyah@iium.edu.my](mailto:norzariyah@iium.edu.my)

N. B. Idris  
e-mail: [norbik@iium.edu.my](mailto:norbik@iium.edu.my)

E. R. A. Engku Ali  
e-mail: [rabiah@iium.edu.my](mailto:rabiah@iium.edu.my)

I. E. Khairuddin · J. Mohamad Zain  
Institute for Big Data Analytics and Artificial Intelligence (IBDAAI), Universiti Teknologi Mara,  
40450 Shah Alam, Selangor, Malaysia  
e-mail: [irnieliana@uitm.edu.my](mailto:irnieliana@uitm.edu.my)

J. Mohamad Zain  
e-mail: [jasni67@uitm.edu.my](mailto:jasni67@uitm.edu.my)

A. F. Zainal Abidin  
Faculty of Computing, College of Computing and Applied Sciences, Universiti Malaysia Pahang,  
26600 Pekan, Pahang, Malaysia  
e-mail: [firdausza@ump.edu.my](mailto:firdausza@ump.edu.my)

Malaysia's Central Bank participated in a cross-border payments trial under Project Dunbar.

**Keywords** Central Bank Digital Currency (CBDC) · Central bank · Malaysia

## 1 Introduction

Generally, a central bank issues two types of liabilities: physical banknotes and electronic central bank deposits, also known as reserves or settlement balances (Engert and Fung 2021). Physical notes or cash are the main payment methods used by consumers and merchants for transactions. However, with the evolving technologies, the global trend of the payment system has shifted from a cash to cashless society. Citizens around the world are currently applying the latest innovation of contactless payments and mobile payment, which are more convenient and lower transaction costs. Hence, these have become the necessary factors for the central banks to develop their own digital currency.

### 1.1 *The Overview of Central Bank Digital Currency (CBDC)*

Central Bank Digital Currency (CBDC) is predicted to be one form of central bank money. A CBDC is a digital form of central bank money that is different from balances in traditional reserve or settlement accounts. For clarity, CBDCs should be viewed in the context of other types of fiat money (Ward and Rochemont 2021). It uses a digital token to represent the virtual form of a fiat currency of a particular nation or region. It is essentially different from the various forms of virtual currency (such as bitcoin, ethereum, and ripple) that have been created by private entities and whose market prices have exhibited very sharp fluctuations in recent years (Bordo and Levin 2021). CBDC is fully developed by the central bank using underlying blockchain technology. Countries worldwide are currently active in developing their own CBDC, and China leads the initiative by officially launching its digital Yuan in early 2021 (Arreddy 2021). While other countries, including the United States (US), United Kingdom (UK) and Russia are also working progressively to develop their CBDC (Ward and Rochemont 2021).

Ward and Rochemont (2019) defined Central Bank Digital Currency (CBDC) as a digital form of central bank money and it is different from balances in traditional reserves or settlement accounts. Meaning, Dyson, Barker and Clayton (Meaning et al. 2018) stated that CBDC could be viewed as electronic narrow money and, in some ways, it already exists in the form of central bank reserves. The local perspective defined CBDC as central bank cash in the form of banknotes and coins made available in electronic form (Ahmat and Bashir 2017a). According to Kumhof and Noone (Kumhof and Noone 2021) CBDC is electronic central bank money that can be

accessed more broadly than reserves with greater functionality for retail transactions compared to cash. It has a separate operational structure to other forms of central bank money, potentially serving a different core purpose (Kumhof and Noone 2021). In simple terms, CBDC is a digital form of money that currently exists in the current central banking system used for banking transactions, and CBDC is part of bank reserves in the digital form.

## ***1.2 The Origin of Central Bank Digital Currency (CBDC)***

Business transactions between two or more parties initially started with the barter-trade systems, and later banknotes and coins were introduced as a payment method. However, with the growth of the internet and communication technology, society has started to use less cash in daily transactions. Along the time, cashless business transactions have contributed to the existence of digital currencies such as cryptocurrencies.

Cryptocurrency is treated as a commodity, that means that transactions on its sales are to be taxed on the added value (Bolotaeva et al. 2019). Cryptocurrencies have become relevant to China (QuickTake: How China is Closing in on Its Own Digital Currency 2021) and also relatively important for Sweden (Bech and Garratt 2017). Yet, Malaysia is not left behind; Cryptocurrencies trading in Malaysia has shown substantial growth despite the worldwide economic crisis during the COVID-19 pandemic (Helms 2020).

Bitcoin, Ethereum, Ripple, and Tether are examples of cryptocurrencies working on a Distributed Ledger Technology (DLT) technology in the blockchain network. Distributed Ledger Technology (DLT) using consensus algorithm which allows data or transaction to be stored globally across servers (Mukhopadhyay 2018). Respective of cryptocurrencies, the term Central Bank-backed Cryptocurrencies (CBDC) refers to an electronic form of central bank money that can be exchanged in a decentralized manner known as peer-to-peer. Peer-to-peer refers to transactions that occur directly between the payer and the payee without the need for a central intermediary (Bech and Garratt 2017). Due to its decentralization, immutability, and high security behind its cryptography, cryptocurrencies in blockchain technology bring a trust model that does not rely on a central authority (Bech and Garratt 2017). Not relying on central authority is seen as a threat to the current traditional banking system. Realizing the minimum ability to control the growth of cryptocurrencies in business transactions, banking and financial institutions have started to launch their own version of Central Bank Digital Cryptocurrencies (CBDC). The CBDC is expected to operate as the digital currency backed and under the purview of a central authority, that is the central bank.

## 2 Implementation By Country

Generally, there are two major phases of CBDC development that are being implemented. The phases are either research phase or proof-of-concept stage. The following section will discuss the CBDC implementation phase based on countries.

### 2.1 Research

In recent years, many central banks around the world have been studying the possibilities of introducing CBDC in their economy. Among the countries that are actively looking at the impending introduction of CBDC in their monetary system are the United States of America (USA), United Kingdom, Brazil, Singapore, European Union countries, Thailand, India, and Venezuela, among many others. The full list of the countries are given in Table 1.

For example, The US Federal Reserve has been actively researching a central bank digital currency (CBDC). At least two prototypes of potential payments systems connected to a digital dollar are near completion. This is being led by officials at the Federal Reserve Bank of Boston and the Massachusetts Institute of Technology (MIT). The project was dubbed as “Fedcoin”, and is in the advanced stage of research in the state of New York and Massachusetts (Dodev 2018).

In addition, as Venezuela has been subject to a variety of financial sanctions and its own currency hyperinflated, it launched a cryptocurrency backed (in theory) by petroleum in 2018 that is not reported to be widely used (Pfister 2019). The *petro* was designed to be distinct from the national currency and it has not been historically uncommon for socialist societies to have a separate “hard” currency for use by foreigners, the elite and in international trade in tangible goods but the government of Venezuela has little credibility, and its guarantee of the backing of each petro by a barrel of oil from its reserves had little value (Náñez Alonso et al. 2020). Since Venezuelans have access to bitcoin and other cryptocurrencies as well as conventional digital payment systems by way of US bank accounts, the result is widespread use of the US dollar and private payment systems (mainly based in the US) which was the worst possible outcome from the point of view of a national central bank.

### 2.2 Proof-of-Concept

Apart from the countries that are still in the research phase, many others are already in the final stage of proof-of-concept (POC). Among the countries that have reached the implementation phase are: China, Canada, Sweden, Saudi Arabia and UAE, Turkey, France, Thailand, Indonesia, Norway, and many others.

Among the most advanced countries in the POC phase is China. As such, China's digital yuan (E-CNY) has been on trial since April 2020 in three cities and was reported to have supported 4 million transactions by November (Somasundaram 2020). The E-CNY is designed as a replacement for physical cash. Although the trial started with the People's Bank of China (PBOC) giving 200 yuan each to 50,000 randomly selected consumers, it is really a two-tier system in which the PBOC issues E-CNY to commercial banks who may issue it to customers through mechanisms of their own. Commercial banks (and other payment providers) have to deposit reserves equal to the E-CNY, which they issue with the PBOC (John 2020). Consumers use E-CNY through interoperable software wallets provided by the banks and other issuers but in practice this is similar to other digital payment systems such as WeChat or Alipay, both already widely used in China.

Another example of a later stage implementation is in Sweden where they are experimenting with the Swedish E-Krona. The Swedish E-Krona system is based on DLT with a central ledger run by the Riksbank (Swedish Central Bank) and on which authorised private payment providers record all transactions of CBDC account holders (Viñuela et al. 2020). The Riksbank would issue digital currency to banks who would distribute it to end-users. In this respect it is similar to the digital yuan. Relatively small anonymous transactions may be allowed on the system and prepaid value cards could of course be exchanged in a manner similar to physical cash. The governor of the Riksbank has called for the E-Krona to become legal tender but the project has been running in simulation mode during 2020 (Nelson 2021). Sweden is perhaps the country with the lowest use of physical cash and the central bank acknowledges that a CBDC is required in order to maintain its traditional monetary role (Sveriges Riskbank 2018). The risk of disintermediation in the banking industry, through individuals switching from commercial bank accounts to CBDC accounts with the central bank is addressed in a clever way by the E-Krona project. It proposes that balances to a certain amount in E-Krona be held at zero interest but amounts higher than the limit be subject to an interest rate lower than available in commercial banks, and possibly negative, in order to avoid this problem.

In addition, a cross-border project was initiated by Saudi Arabia and United Arab Emirates (UAE) to investigate the viability of making cross-border payment using digital money which is known as Project Aber (2020). Saudi Arabia first launched Project Aber with the UAE in late 2019. The goal with the project was to look at the feasibility of developing a cross-border digital currency. The combined effort of two central banks in such a study is among the first of its kind. Project Aber was different from most pilot programs as two central banks and a further three commercial banks from each country were involved in the project. The high-level objectives of Aber were: to research Distributed Ledger (DLT) technology and to explore its suitability for such an experiment; to see whether inefficiencies of the existing cross-border payments could be overcome using a CBDC; as well as gaining knowledge and experience in DLT technology and the challenges of deploying a mutualized infrastructure. The project's conclusion confirmed that a cross-border dual issued currency was technically viable and that it was possible to design a distributed payment system that offers significant improvements over a centralized

payment system (UAE, Saudi Arabian central banks release report on Project Aber CBDC trial [2020](#)).

### 3 CBDC in Malaysia

Central Bank of Malaysia or Bank Negara Malaysia (BNM) is the main entity to issue money, serves as Malaysia's banker and adviser, and regulates the country's financial institutions, credit system, and monetary policy. BNM is also responsible to looking into the CBDC implementation in Malaysia. In the following section, the central bank of Malaysia or known as Bank Negara Malaysia (BNM), viewpoints and directions on CBDC are presented and discussed.

#### 3.1 *CBDC from the Bank Negara Malaysia Perspective*

Figure 1 illustrates the CBDC milestones of central banks. There are four categories on the milestones, with central banks showing varying levels of progress in CBDC and their drives for the CBDC. For example, the USA, Sweden, China, and Ecuador are interested in the CBDC for daily transactions by the public. Similarly, Canada, Thailand, Hong Kong, and Singapore are in the proof-of-concept phase, focusing on cross-border CBDC settlement. Despite the positive shifting to CBDC among all the banks illustrated in Fig. 1, Ahmat and Bashir (Ahmat and Bashir 2017b) reported some banks are more cautious of CBDC, for example, due to the uncertainties and complexities of retail CBDC, banks are advised to conduct thorough research before deciding to embark on the CBDC issuance. Among the dilemmas they are facing are, either they are too fast in the implementation of CBDC without proper assessment of the risks or too slow in adapting to the advancement of technology.

Meanwhile, according to Bernama (Bernama 2021), Bank Negara Malaysia (BNM) has no intention for the immediate plan to issue CBDC in Malaysia. The BNM will actively assess the potential value proposition of CBDC in light of developments in the digital assets and payments space. Key CBDC policy choices, according to BNM, would be guided by obvious advantages to Malaysia as a whole while also ensuring that the risks associated with CBDC issuance, notably financial stability concerns, are appropriately addressed. As stated by BNM, CBDC issuing should be used in conjunction with other payment instruments, such as physical currency, to guarantee that all Malaysians, particularly those in underserved areas, continue to have access to secure and efficient payment options.

Generally, the hesitation to use digital assets as payments among central banks is contributed by the fact that they do not possess the universal characteristics of money. According to BNM, among the risks of using them as a good store of value and medium of exchange are; proneness to price volatility, vulnerable to cyber threats, and lack of scalability (Bernama 2021).

**Table 1** CBDC implementation by country

| Country                           | Implementation phase               |
|-----------------------------------|------------------------------------|
| Australia                         | Proof-of-Concept                   |
| Bahamas                           | Public launch (first in the world) |
| Brazil                            | Research                           |
| Cambodia (Project Bakong)         | Proof-of-Concept                   |
| Canada (Project Jasper)           | Proof-of-Concept                   |
| Chile                             | Research                           |
| China                             | Proof-of-Concept                   |
| Ecuador                           | Research                           |
| Europe (Europe Central Bank)      | Research                           |
| France                            | Proof-of-Concept                   |
| Hong Kong (Project Aurum)         | Proof-of-Concept                   |
| India                             | Research                           |
| Indonesia                         | Proof-of-Concept                   |
| Japan                             | Proof-of-Concept                   |
| Lithuania                         | Research                           |
| Morocco                           | Research                           |
| Norway                            | Proof-of-Concept                   |
| Russia                            | Proof-of-Concept                   |
| Saudi Arabia & UAE (Project Aber) | Proof-of-Concept                   |
| Senegal                           | Research                           |
| Singapore (Project Ubin)          | Research                           |
| South Africa                      | Proof-of-Concept                   |
| South Africa                      | Proof-of-Concept                   |
| South Korea                       | Proof-of-Concept                   |
| Sweden                            | Proof-of-Concept                   |
| Switzerland (Project Helvetia)    | Research                           |
| Thailand                          | Proof-of-Concept                   |
| Thailand                          | Research                           |
| Tunisia                           | Proof-of-Concept                   |
| Turkey                            | Proof-of-Concept                   |
| Ukraine                           | Proof-of-Concept                   |
| United Kingdom                    | Research                           |
| Uruguay                           | Research                           |
| USA                               | Research                           |
| Venezuela                         | Research                           |





**Fig. 1** CBDC milestones for other central banks (Ahmat and Bashir 2017b; Promoting safe and efficient payment and remittance system 2020)

An analysis by Price Waterhouse Cooper (PWC) showed between Asia countries, Malaysia is behind its neighbors in the CBDC arena, especially compared to nations such as Cambodia, Thailand, mainland China, Hong Kong, and Singapore, which have emerged as being amongst the most mature CBDC projects to date stages (Kaur 2021). Another separate report by Bank for International Settlements (BIS) released in January 2021 found that about 60% of central banks are conducting experiments or PoC projects, up from 42% in 2019, while another 14% are moving forward to development and pilot.

However, John (2021) reported that central banks in Malaysia alongside Australia, Singapore, and South Africa would conduct a cross-border payments trial using several CBDC to see if cross-border payments allow transactions to be settled more cheaply and easily. The cross-border involvement of Malaysia is called Project Dunbar. Project Dunbar will develop prototypes for shared platforms that will enable international settlements with digital currencies issued by multiple central banks to allow direct transactions between institutions, reducing costs and increasing speed (BIS Innovation Hub and central banks of Australia, Malaysia, Singapore and South Africa will test CBDCs for international settlements 2020). Results will inform global and regional development and support the G20 roadmap for improving cross-border payments (BIS Innovation Hub and central banks of Australia, Malaysia, Singapore and South Africa will test CBDCs for international settlements 2020). In addition,

Kiff et al. (2020) reviewed some of the processes, roles, and responsibilities that would need to be defined for creating, issuing, distributing, freezing, deactivating, and destroying CBDC. They also suggested several general foundations for discussions on whether to issue CBDC, with concrete operational considerations.

In June 2021, Kaur (2021) reported that BNM Director of Financial Development and Innovation said during a Fintech Fireside Asia session that Malaysia's central bank would conduct a proof-of-concept (PoC) study to assess the benefits of a CBDC by emphasizing wholesale CBDCs (Kaur 2021). Malaysia is seen not going into retail; however, Maybank participates in Bakong Project alongside the National Bank of Cambodia (NBC). The NBC started experimenting with digital wallets for cross-border transactions with Maybank by experimenting with the possibility that Cambodian citizens working in Malaysia could transfer funds to Cambodia with much lower costs (Adam-Kalfon et al. 2021). The Bakong project aims to increase financial inclusion in a country where most residents are unfamiliar with bank accounts, yet, mobile phone usage is widespread, and the Bakong attempts to improve financial inclusion. It also allows interbank, real-time electronic transactions and promotes transactions in Cambodian riels, compared with today, where the bulk of transactions are in US Dollars (Adam-Kalfon et al. 2021). Not to be left behind, Malaysia is currently involved in Project Dunbar, which brings together the Reserve Bank of Australia, Bank Negara Malaysia, Monetary Authority of Singapore, and South African Reserve Bank with the Bank for International Settlements Innovation Hub to test the use of central bank digital currencies (CBDCs) for international settlements (Project Dunbar: international settlements using multi-CBDCs 2021).

## 4 Conclusion

For centuries, buying and selling have been using cash. However, in line with the growth of computers, communication, wireless technologies, online banking system, and the need for cashless transactions due to the pandemic, cashless has been seen as a good alternative for payments. Innovation on contactless payment is seen as more convenient and safer for consumers. Hence, these have become the necessary factors for the central banks to have their own digital currency CBDC to reduce dependency on cash. Countries like China, Sweden and Bahamas have a clear direction on CBDC in their societies. Based on the existing studies and reports, Malaysia has seen no intention for the immediate plan to issue CBDC. However, BNM on CBDC issuance in Malaysia is taking a careful move towards CBDC. BNM currently assesses the potential value of CBDC, especially in the digital assets and payments space. Importantly, BNM has to ensure CBDC is beneficial to Malaysia if it were to be implemented.

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# Strategic Vectors of Sustainable Development of Ukraine's Economy in the Context of World Economic Dominants



Liudmyla Kozak , Olesia Fedoruk , and Tetiana Zaplitna 

**Abstract** In order to increase the level of public welfare in Ukraine, it is necessary to implement a national strategy for sustainable development to ensure the unity of its components: consistent economic development, social progress, environmental security in their interaction and mutual influence, balance and integration. The goal of the sustainable development strategy is to ensure a high quality of life of Ukraine's population, to create favorable conditions for present and future generations and to stop the degradation of natural ecosystems by implementing a new model of economic growth based on sustainable development.

The problem of sustainable development has become an important component of the domestic and foreign policy of many states on different continents. An important part of the problem of sustainable development should be noted. Its severity does not subside over time, but rather grows. The efforts of the world community towards the implementation of sustainable development are inadequate to the threats produced by the next step of human civilization. A change is required in the development paradigm itself, which was formed in the distant past and does not correspond to modern realities, which, first of all, include the depth and speed of changes in the conditions of human life. The innovative world needs innovative approaches to defining the fundamental foundations of its modern development.

**Keywords** Sustainable development · Economic development strategies · Economic security · National economy · Human potential · Efficiency · Innovation · Competitiveness · Economic growth · Public welfare · Technology · Ecosystem

## 1 Introduction

The aim of the study is to develop promising directions of the national policy of economic growth based on the implementation of the model of sustainable development of the Ukrainian economy. The obtained research results provide the following

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L. Kozak (✉) · O. Fedoruk · T. Zaplitna  
National Transport University, Kyiv, Ukraine

opportunities: to study the preconditions and features of sustainable development as a balanced system that is capable of ensuring the growth of the national economy; to analyze modern trends, strategic foundations and promising directions for sustainable development of Ukraine in the global economic environment based on the analysis and assessment of the latest scientific concepts of economic management in accordance with the existing strategic potential of the state; to develop a conceptual model of sustainable development of the national economy, highlighting its main components; to define goals, main trends and possible ways of solving basic problems of sustainable development, which will lead to balanced growth of the Ukrainian economy.

Taking into account the extreme relevance of this issue for the development of human civilization as a whole, many scientists, practitioners, experts of international organizations in various countries of the world have devoted their work to the study of the problems of sustainable development and the development of ways to ensure it. Other works include the fundamental work of Meadows D.H. (1972), Brundtland G.H. (1989), Bartlett A. (1998), Tomas V. (2002), Daly H.E. (1996), who not only raised this extremely important problem for all states, but also developed practical recommendations and proposals for the formation of national and regional strategies for sustainable development. The concept of “sustainable (steady) development” appeared in the 1980s as part of the UN Commission under the leadership of the Prime Minister of Norway Gro Harlem Brundtland. Brundtland founded the Macroeconomics and Healthcare Commission, chaired by Jeffrey David Sachs. Brundtland has declared the fight against violence as a major healthcare issue, and has led an international movement to quit smoking through education and persuasion.

## 2 Literature Review

Under her leadership, WHO became the first major employer to require absence of tobacco addiction as a prerequisite for employment. In the final document of the commission, entitled “Our Common Future”, sustainable development was defined as long-term continuous development that meets the needs of the people living today without compromising the needs of future generations. The definition includes two key concepts: the concept of needs, in particular the integral needs of the world’s poorest people, which are becoming a priority, and the idea of imposing government restrictions on technological and social organizations that ensure the potential of the environment for present and future generations.

Sustainable development is viewed as a long-term economic development (the basis for meeting human needs), based on certain conditions and standards (indicators). In a narrower economic sense, sustainable development means creating public benefits for many generations and compliance with the defining prerequisites for its implementation. The UN and OECD define sustainable development as the interconnection and balance of economic, social, environmental, institutional and innovative and technological components in order to maximize human well-being without

complicating future generations' opportunities to meet their needs. Despite all the disagreements in approaches to sustainable development, which are inherent in wide state and public circles of different countries, there is a certain general awareness of the necessity of at least three of its fundamental measurements: economic growth, social progress and environmental protection. From a formal point of view, sustainable development is seen as the harmonization of relations between three structural subsystems of the civilized world: society, economy and environment.

### **3 Research Methodology**

A set of well-known scientific methods was used to achieve the stated research goal and tasks' solution. The methodological basis of the study was the fundamental provisions of modern economic theory, the latest scientific achievements of the economics of nature management and environmental protection, and the works of leading domestic and international scientists. Achievement of this goal was carried out by the following scientific methods: system analysis—for the development of promising directions of the national policy of economic growth based on the implementation of the model of sustainable development of the Ukrainian economy; comparative analysis—in order to study the prerequisites and features of sustainable development as a balanced system that is capable of ensuring the growth of the national economy; economic and mathematical analysis—for a comprehensive assessment of the effectiveness of promising directions of sustainable development of Ukraine in the global economic environment based on the analysis and assessment of the latest scientific concepts of management in accordance with the existing strategic potential of the state. The information base of the study was made up of the key provisions of the sustainable development concept, the results of modern environmental and economic research by domestic and international scientists, as well as reports of the State Statistics Service of Ukraine, the Ministry of Environmental Protection and Natural Resources of Ukraine.

### **4 Results**

The current stage of world economic development is characterized by the presence of a number of specific features associated with the formation of the information society, democratization and decentralization of state power, internationalization and development of international relations. In the context of current economic realities, a strategy for increasing competitiveness, focused on modern technologies and innovations, is an important factor for strengthening the country's global competitiveness and achievement of sustainable long-term economic growth (Fath 2015). It has been established that the countries that implement scientific and technological developments and innovation-oriented strategies of global competitiveness demonstrate



sustainable competitiveness and long-term growth. For this reason, countries must develop economic development strategies focused on innovative solutions to achieve sustainable long-term growth (Şener and Saridoğan 2011; Balci 2019). The attracted investment resources can become a catalyst for achieving faster rates of economic growth in developing countries. However, growth driven by foreign direct investment has led to environmental degradation in most cases. In addition, food and water shortages, climate change and growing economic inequality have become major threats for this millennium. A wholesome solution to these problems by integrating economic, environmental, social and management issues at the stage of attracting investment resources can be a potential solution for drawing up a trajectory of sustainable growth, in particular, for developing economies (Narula 2012; Li et al. 2017).

In addition, a slowdown in economic growth is a characteristic feature of the developed countries. The gross domestic product growth rate in the countries of the Organization for Economic Cooperation and Development has decreased several times over the past fifty years. At the same time, a correlation was found between GDP growth rates and life satisfaction, which confirms the conclusion that further economic growth in developed countries does not improve people's well-being. This indicates that a slowdown in economic growth is a natural path to sustainable development (Juknys 2018).

The global trend towards urbanization means that more than half of the world's population now lives in cities. Cities in industrialized countries tend to use less energy per capita than the national average, while cities in developing countries use significantly more energy resources (Friedman and Cooke 2011). The implications of rapid urbanization for the urban ecosystem will intensify as the pace of economic development increases. If the relationship between economic development and environmental sustainability is not fully explored and implemented in strategic programs for sustainable development, the urban ecosystem will begin to degrade at a rapid rate (Zhan et al. 2012; Dou et al. 2013; Visvaldis et al. 2013).

The concept of sustainable development, which includes social, environmental and economic goals, requires the achievement of efficient use of resources, the focus of investment on technological development and institutional change (Safarzyńska 2013). Although this concept is generally accepted and relatively easy to understand, there are difficulties in applying the principles of sustainable economic development in practice, and difficulties arise in the process of measuring the level of sustainability (Koltun 2010).

Most countries in the world implement a policy of sustainable development, the goals of which are to combine economic growth with social development, while protecting the planetary life support system (Dittmar 2014; Zheng et al. 2019). The concept of sustainable development requires countries around the world to rationally use their natural resources in order to improve the quality of the environment as a determining component of the well-being of society (Ursache 2014). Sustainable development requires radical and systemic innovations that can be effectively created and implemented based on the concept of business models. This concept provides businesses with a wholesome framework for the development and implementation of



innovations aimed at sustainable economic development (Boons et al. 2013; Halati and He 2018).

Today, energy resources are becoming a key factor in ensuring economic growth, which is an indicator of integrated national power (Li and Xu 2012). Sustainable use of energy resources and environmental protection are essential for the implementation of the concept of sustainable development (Fistung et al. 2015). Sustainable economic growth can only be achieved when the relative contribution of environmental investment to environmental quality exceeds the relative contribution of the combined investment of energy and the environment to production. Long-term growth requires not only a constant reduction in energy intensity and technological progress, but also an optimal adjustment of the structure of energy consumption, that is, a transition to renewable energy sources (Zuo and Ai 2011; Yingzi and Yuying 2011; Xu et al. 2017). Environmental protection is becoming a challenge for many countries of the world, and economic policy and scientific research are aimed at preserving the environment and sustainable development (Abdelwahab 2012).

The modern world is facing profound structural transformations, in particular the transition to an environmentally friendly low-carbon and resource-saving economy. Transformation of the economy in the context of the implementation of the strategy of sustainable development will increase its competitiveness and ensure the growth of social welfare, as well as meeting economic, environmental and social needs (Zorzoliu 2012; Gilli et al. 2013). Research confirms the long-term link between environmental sustainability, renewable energy consumption and economic growth. The use of renewable energy sources is a reliable way to reduce environmental pollution and sustainable development (Akadiri et al. 2019).

In the context of the COVID-19 pandemic, sustainable development is an important and strategic priority for states, which requires the simultaneous achievement of many conflicting goals, including social, economic, energy and environmental constraints (Jayaraman et al. 2015). In a society that is still looking for solutions to implement the concept of sustainable development, good governance has always been a key tool for implementing a sustainable development strategy (Rasoolimanesh et al. 2019). In this context, due to its strategic mechanisms, effective public administration contributes to the long-term goals of sustainable development, economic policy coherence through vertical and horizontal coordination, open and transparent process of stakeholder involvement and consultation, bringing sustainable development strategies closer to citizens (Kardos 2012; Vergragt 2013).

It is generally accepted that successful development planning and effective management decisions require an integrated approach that balances all aspects of sustainability: social, environmental and economic (Luukkanen et al. 2019). Thus, green economic development focuses on greening consumption, production, business and markets.

In recent decades, significant efforts have been made to study economic sustainability using various sustainability assessment tools developed on the basis of indicators or integrated assessments (Fritz and Koch 2016; Langvinienė and Sližienė 2014). In order to identify strategic directions for sustainable development, it is necessary to understand how the social, environmental and economic dimensions

are intertwined, and how direct and indirect factors affect sustainable development. In particular, human resources have become an important element that generates value for companies, industries and national economies in general. The quality of human capital is growing, and knowledge, skills and competencies are increasingly helping to improve the potential for sustainable economic growth (Burja and Burja 2013; Chitescu and Lixandru 2016).

Scientists strive to understand and argue the factors that influence public welfare and its potential synergy with stability (Turkoglu 2015). Recent research has highlighted that factors of social well-being do not necessarily indicate stability. The distinction between stability and well-being is clear. Stability is a future-oriented concept, while well-being explains the state of the art. Consequently, indicators of well-being do not cover issues such as inequality, climate change, scarcity of natural resources, and many others (Bakar et al. 2015). Increasing the sustainability of development requires reducing the energy intensity of human well-being—the amount of energy used per unit of human well-being (Jorgenson et al. 2014).

Of course, one of the priority values of the new civilization is the concept of sustainable development. The principle of sustainable development is not limited to environmental and economic factors. Sustainable development is an important part of modern world culture. To achieve sustainable and balanced development, a set of measures should be implemented to stabilize economic growth by ensuring the required volume of production, consumption of resources per capita and the permissible level of pollution. In the scientific literature, sustainable development is understood as a balanced state of globalized world culture, where the desire to preserve environmental sustainability is combined with actions aimed at eradicating poverty, social and ethnic conflicts (Gabitov et al. 2014).

The need to move towards sustainable development is being actively discussed in academia and government. Developed countries and developing countries have developed their own national concepts and methods for assessing sustainability. States have developed different systems of sustainable development indicators (Cornescu and Adam 2014; Bolcárová and Kološta 2015). In some cases, the number of indicators was calculated in the hundreds. Public authorities have begun to pay attention to the issue of sustainability analysis, but the problem is that not all developed methodologies are suitable for practical application due to the lack of statistics used in the calculations. It is necessary to highlight the absence of a unified methodology for assessing the sustainability of development, which makes it difficult to analyze both global and regional trends, as well as the fact that there is no systematic approach to the analysis of the methods themselves. Having analyzed the definition of sustainable development, one can come to the conclusion that there is also no single line of interpretation of this concept. Despite a number of scientific studies on these issues, the aspect of the formation of a methodology for assessing the sustainability of the development of the national economy has not been sufficiently studied.

Currently, there are many methods for calculating sustainable development indicators, which are based on two approaches. The first approach is to form a single aggregated indicator, the second is to build a system of indicators. The first approach is more convenient for making decisions, since the output is the analysis of the values

of only one generalized indicator. The disadvantage is the difficulty in calculating this indicator due to a number of methodological and statistical problems. Methodological problems include the absence of international unified rules for calculating aggregate indicators of sustainable development. Statistical problems arise due to the lack of a necessary and reliable statistical base. The essence of the second approach to assessing the sustainability of the development process consists in calculating a system of indicators, each of which reflects only one of the aspects of sustainable development: economic, social, environmental.

Recently, the index of sustainable economic well-being has been used to measure the level of sustainable development (Chelli et al. 2013; Menegaki et al. 2017; Rugani et al. 2018). This index is the value of GDP per capita minus the sum of expenditures on socio-economic and environmental factors. When calculating the index of sustainable economic well-being, environmental costs take into account such variables as the price of water and air pollution, noise pollution, loss of agricultural land, compensation to future generations for the loss of non-renewable sources.

The importance of introducing an innovative strategy for economic development in Ukraine is based on internal and external factors, namely: in Ukraine, as a result of the dominance for many years of resource and energy-intensive industries and technologies, commodity orientation of exports and excessive concentration of production in industrial regions, such a development management structure that is generally ineffective and environmentally hazardous; the level of economic development and well-being of the population does not correspond to the natural, scientific and technical, agrarian and industrial potential of Ukraine; Ukraine has international commitments to sustainable development, defined by the UN strategic documents; the basis for the implementation of innovative transformations in Ukraine towards sustainable development is the Association Agreement between Ukraine and the European Union; the developed and approved strategic national, sectoral and regional documents do not fully reflect the goals and objectives of sustainable development.

The new worldview paradigm, on which the strategy of sustainable development is based, is a practical model of such development of all countries of the world, which meets the needs of the current generation without compromising the ability of future generations to meet their own needs. This model is focused on achieving the optimal balance between the three components of development—economic, social and environmental.

The transition to sustainable development is a process of changing the value orientations of many people. Recognized international fundamental values of development are freedom, equality, solidarity, tolerance, respect for nature, shared responsibility. National goals of sustainable development determine the focus of economic strategy on the common good and protection of Ukraine's economic interests.

Ukraine's sustainable development strategy focuses on the following vectors:

- ensuring sustainable development of the country, carrying out structural reforms, ensuring economic growth in an environmentally friendly way, creating favorable conditions for economic activity;

- ensuring economic security of the state, business and citizens, protection of investments and private property, ensuring peace and protection of borders, fair and impartial justice, ensuring the introduction of effective mechanisms to combat corruption. The priority is the safety of human life and health, which is impossible without an effective system of public health, the provision of appropriate medical services, protection of socially vulnerable groups, a safe state of the environment;
- ensuring that every citizen has access to high-quality education, health care and other services in the public and private sectors;
- ensuring mutual respect and tolerance in society, pride in one’s own state, its history, culture, and science.

The strategic vision of Ukraine’s sustainable development is based on ensuring national economic interests and fulfilling Ukraine’s international obligations on the transition to sustainable development. This development involves:

- overcoming imbalances in the economic, social and environmental spheres;
- transformation of economic activity, transition to the principles of “green economy”;
- building a peaceful and secure, socially cohesive society with good governance and inclusive institutions;
- ensuring partnership between government bodies, local government bodies, business, science, education and civil society organizations;
- full employment of the population;
- high level of science, education and health care;
- maintaining the environment in proper condition, ensuring a quality life and well-being of present and future generations;
- decentralization and implementation of regional policy, implying a harmonious combination of national and regional interests;
- preservation of cultural values and traditions.

The determining factor in the strategy of economic development of Ukraine is the innovative direction of development, which is based on the active use of knowledge and scientific achievements, stimulating innovation, creating a favorable investment climate, updating production facilities, creating high-tech activities and sectors of the economy, increasing the energy efficiency of production, stimulating a balanced, based on attracting investments in the renewable energy, in environmentally friendly production and “green” technologies. Economic growth will not be associated with the exploitation of natural resources, but with the widespread use of green economy models. Waste accumulated in the past will be gradually recycled and disposed of. In exports, there will be a transition from commodity and products of their primary processing to the prevalence of products with a high degree of added value.

Energy saving measures and the application of energy efficient practices will significantly reduce the energy intensity of gross domestic product. The share of clean energy production will grow steadily. This will significantly reduce emissions of greenhouse gases and other pollutants into the atmosphere and will contribute

to combating climate change. All the above will help to improve the quality of the environment and public health.

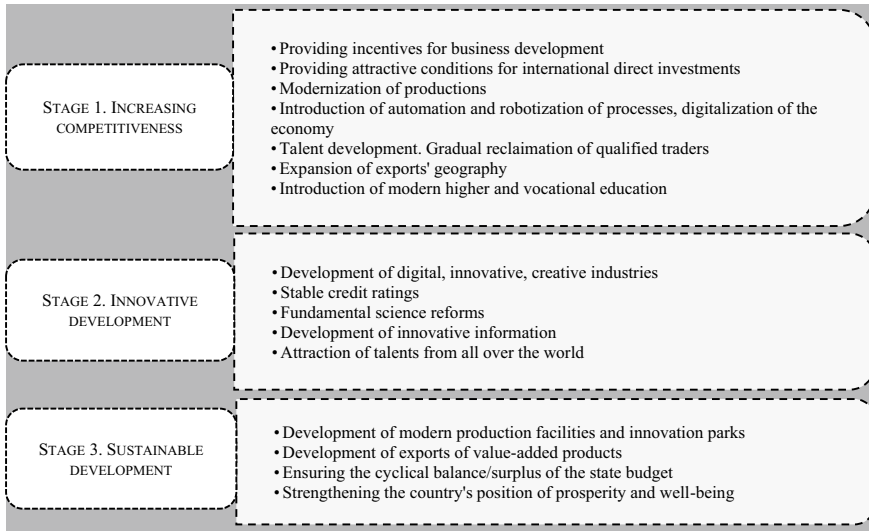
The experience of developed countries shows that sustainable development has become the basic direction of humanity's movement in the era of globalization towards significant economic growth, social progress and a clean environment. Sustainable development is a long-term process that harmoniously combines the use of natural resources, innovation processes, investment trends and institutional change with the needs of present and future generations. Sustainable development is a dynamic balance that harmonizes various interests: economic growth, social progress, environmental protection, ensuring equality of human rights and freedoms, democratization of society.

Today the concept of sustainable development has not yet received wide practical application in Ukraine. There are two important factors that are systemic in nature. The first is to identify the reasons for this situation when Ukraine and society, which have quite significant strategic reserves of various types of resources, remain among the poorest countries of Europe. The second is whether Ukraine, if sufficient funds are available, will be able to use them appropriately to achieve sustainable development, and is it able to turn its own resources into effective capital and a powerful source of development of the national economy.

One can trace the relationship between the competitiveness of the national economy and sustainable development. It should be emphasized that one of the important criteria for a country's competitiveness is the level of its human development. Ukraine ranks 74th in the world in the human development index. Ukraine has made slow but steady progress in development compared to the previous year. According to the index, life expectancy of Ukrainians is 72.1 years. The education index measures the average duration of education of the population, which is 11.4 years, and the expected duration of education of the population—15.1 years. The gross national income index per capita is 13,216 US dollars. The list is headed by Norway, the second place is occupied by Ireland, and the top three is closed by Switzerland. The top 10 includes Hong Kong, Iceland, Germany, Sweden, Australia, the Netherlands and Denmark. The country's competitiveness is also determined by how real incomes increase in the long run. Today, low solvency of the population leads to lower demand and inhibition of production and economic turnover, reduced investment and technological progress. In Ukraine, labor cost as part of the production cost is three times lower than in developed countries. The average salary in Ukraine is 12,337 hryvnias (minimum—6,000 hryvnias).

The concept of sustainable development of the Ukrainian economy is based on the following basic principles:

- humanity can really make development sustainable and long-term, so that it meets the needs of people living now, without depriving future generations of the opportunity to meet their needs;
- the restrictions in the field of exploitation of natural resources are relative. They are associated with the modern level of technology and social organization, as well as with the ability of the biosphere to heal itself;



**Fig. 1** Conceptual model of sustainable development of the Ukrainian economy. *Source developed by the authors based on (Cabinet of Ministers of Ukraine 2021)*

- the necessity to meet the basic needs of all people and provide an opportunity for everyone to realize their hopes for a more prosperous life. Without this, sustainable and long-term development is simply impossible;
- harmonization of the way of life of those who use surplus funds and property with the ecological possibilities of the planet, including the use of energy;
- achieving compliance of the size and growth rate of the population with the changing production potential of the Earth's global ecosystem.

Ensuring sustainable development of the Ukrainian economy will take place in several stages, namely: increasing the competitiveness; innovative growth; sustainable development (see Fig. 1).

Modern challenges of introducing sustainable development standards require the development of new directions for their achievement, which are at the crossroads of theory and practice, various methods of influence and ways of people's perception of the world around them and themselves. EU programs designed to generate motivational, financial and organizational support in priority areas of social transformation, which include development based on sustainability, are a powerful mechanism for achieving positive change. Also important in the successful implementation of these measures is the need to demonopolize the market for the supply of resources, in particular energy, which will not only reduce prices and improve the quality of services provided, but also increase the level of interest of energy suppliers in identifying and applying mechanisms to influence consumer behavioral patterns, stimulation of energy saving and transition to more environmentally friendly alternative energy sources.

Sustainable development requires the formation of efficient production in combination with changes in consumption structures, primarily in industry, agriculture, energy, and transport. This will ensure economic growth while reducing the cost of energy, raw materials and waste. The formation of the foundations of sustainable development will contribute to energy and resource conservation. This is a prerequisite for reviving and boosting the development of the national economy, a mechanism for efficient and economical use of fuel and energy. The main directions of solving energy saving problems are the development and implementation of energy saving mechanisms, including improving pricing policy; modernization, reconstruction and replacement of technologies that will help reduce energy consumption; efficient use of our own energy base.

One of the main tasks and prerequisites for Sustainable Development is to create appropriate conditions for ensuring the sustainable use of natural resource potential for the benefit of modern and future generations. It provides for the following measures: reduction to optimal volumes of production and consumption of natural resources (primarily metals, energy carriers, forests, fresh water, land use in cultivation, etc.); optimization of the ratio between the production of means of production and consumer goods, which, along with environmental, is also of important socio—economic importance; formation of an effective investment policy aimed at the development, utilization, and use of nature—and resource-saving, low-waste and waste-free technologies, production of environmentally friendly types of products.

The significant share of land resources determines the need for balanced development of the agro-industrial sector of the economy, conservation and rational use of land resources. To successfully solve these problems, it is necessary to reduce plowing of lands and increase soil fertility, while stopping their degradation. The transition to sustainable development requires the definition of the main directions of balanced water use, improvement of water supply, preservation of water resources systems as unique components of the natural environment.

At the same time, the inconsistency of economic development and environmental safety requirements, the dominance of nature-intensive industries, high share of resource- and energy-intensive obsolete technologies, commodity export orientation, lack of humanistic values among development priorities, and insufficient level of ecological culture and consumption leads to deepening crises in the economy, deterioration of the environment, creates a real threat to the life and activities of current and future generations.

Ukraine can ensure sustainable development through the efficient use of all types of resources, structural and technological restructuring of production, the use of the creative potential of all members of society for the development and prosperity of the state. Reforming and modernizing the Ukrainian economy, its integration into the global economy necessitate a revision of the approach to the choice of new factors of sustainable development and the creation of conditions for their use. It seems appropriate to take into account not only the factors of economic growth, but also the conditions, mechanisms and tools by which these factors can be combined and used most effectively, i.e. the potential for growth and development of the economy should be taken into account in the long run.

Taking into account all the above, it becomes clear the need to determine the components of a balanced system, modern dominants and promising directions for sustainable development of Ukraine in the global environment based on the analysis and assessment of the development of Ukraine's potential, including the main natural resources and destructive factors of the functioning of the "human-nature" system, the social component, conditions ensuring natural-technogenic and environmental safety, defining a national environmental and economic policy with a programmatic basis for the future development of the state. All this makes it possible to discuss the national paradigm of Ukraine's sustainable development, because this process has significant specifics and features concerning the possibilities and mechanisms for solving the problems the nation faces.

The goals of sustainable development are realized in the interaction of the main subsystems under the condition of balanced realization of economic, social and ecological potentials. The most important condition for determining the different types of potentials in the involved subsystems is the principle of integrity. A systematic approach to clarifying the essence of the national aggregate capacity means the selection of its individual subsystems and elements. It involves the interconnectedness of all elements of capacity that complement each other.

The leading place in the composition of national potential is occupied by the development of human potential. As one of the most important and necessary resources for economic development and functioning, human potential is an integral part of the overall national potential of Ukraine's economy, which combines labor and demographic potential, as well as reflects the spiritual and moral aspects of life. In general, the human potential of the national economy can be divided into three internal blocks of resources: human resources, social capital and social infrastructure.

Having reviewed the features of sustainable development of the national economy, current trends and problems in the formation of an integral system of sustainable development of the state, one should focus on the conceptual aspects that are key in creating a full-fledged integral operating system of sustainable development and regulation, the coordination of which will allow to move to higher levels of their development with the quantitative and qualitative development of potentials.

The economic mechanism of nature management and nature protection activity needs further improvement, which envisages: improvement of the natural resources accounting system, economic assessment of natural resource potential, monitoring of the ecological condition of territories; formation of a system of targeted environmental funds and targeted financing from those funds for environmental protection measures; creation of a mechanism for economic stimulation of balanced nature management and nature protection activities; creation of an effective credit mechanism for nature management and environmental protection activities, including environmental banks; planning and forecasting the use of natural resources and environmental protection; formation of a market for environmental jobs and services (environmental insurance, environmental audit); strengthening the economic impact on violators of environmental legislation by improving the current system of fines and controls.



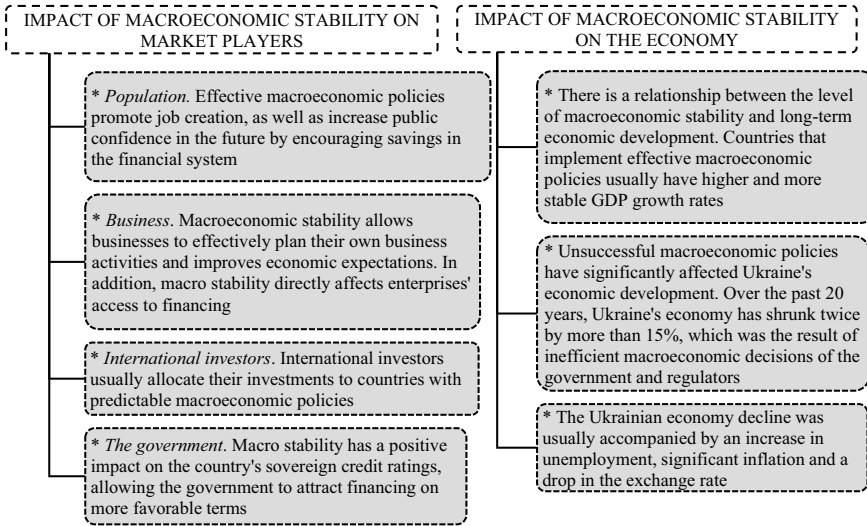
One of the most important components of the formation of a national innovation-oriented economy is the development and implementation of measures related to a scientifically sound basis for structuring the potential to ensure structural and technological restructuring of the economy. Sustainable development is a system of mutually agreed management, economic, social, environmental measures aimed at forming a system of public relations based on trust, partnership, solidarity, consensus, ethical values, safe environment, national sources of spirituality. Among the main components that ensure sustainable development are the following: ecological—determines the conditions and limits of restoration of ecological systems due to their operation; economic—involves the formation of an economic system harmonized with the environmental factor of development; social—affirms the human right to a high standard of living in conditions of economic security and prosperity.

Macroeconomic stability is a necessary precondition for long-term growth of Ukraine's economy (see Fig. 2). Macroeconomic stability means economic growth, which is ensured by increasing the efficiency of production using the achievements of science and technology; full employment—providing jobs for all who are willing and able to work; price stability, as rising prices complicate economic relations of economic entities, reduce real incomes and depreciate savings; achieving equilibrium in international economic relations, which is reflected in the stable exchange rate of the national currency and the balance of payments.

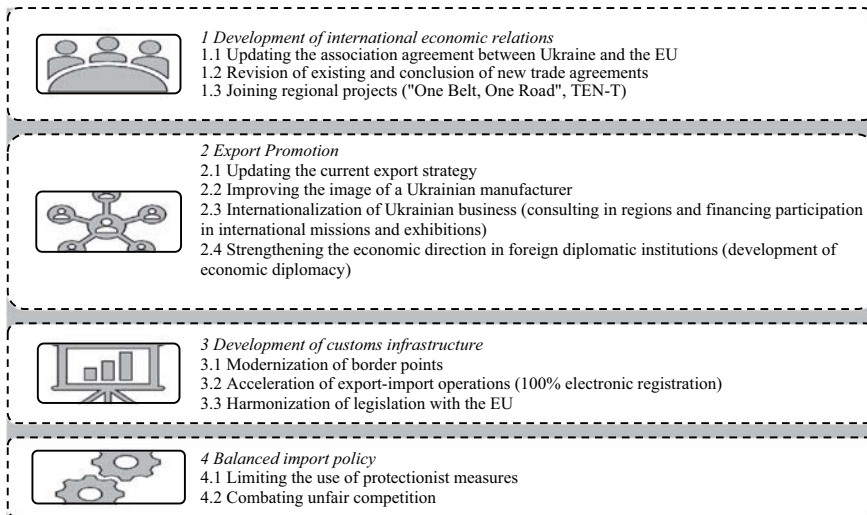
Stability can be defined as long-term macroeconomic balance. Thus it is achieved with the balance of the economy in the time dimension and is identified using some general indicators, the main of which are inflation and GDP deflator, change in the exchange rate and the level of bank interest on loans. There is a high correlation between these indicators: there could be no low interest rates with a rapid devaluation of the exchange rate or a significant rise in prices. Thus, financial and monetary stability or its opposite is revealed synchronously through all indicative indicators.

Despite the high rate of openness of the Ukrainian economy (the ratio of foreign trade turnover to GDP of the country is 90%), it is lower than in other countries of the region. Increased foreign economic activity is a necessary component for a country's economic growth (see Fig. 3). Foreign trade is one of the most important sources of filling the state budget, as well as currency receipts. The EU countries remain Ukraine's largest trading partner. The share of these countries in the foreign trade turnover of goods and services of Ukraine in 2020 was about 40%. But the products of Ukrainian manufacturers are barely represented in the growing markets of Latin America and Africa. The share of exports to both regions is only 7%.

The volume of support for exporters in Ukraine is lower than in a number of countries (Denmark, Poland, Great Britain, Turkey and Germany). The volume of export loans and guarantees in Ukraine is 7 million dollars. This is the lowest index in the region. For example, Poland is issued export loans and guarantees for 5.4 billion. The budget of the Export Promotion Office in Ukraine is 0.5 million. This is at least 11 times lower than in the corresponding institutions of Poland, and 213 times lower than in Germany. The budget of the Ministry of foreign affairs of Ukraine is 160 million dollars. This is at least 4 times lower than in Poland and 43 times lower than



**Fig. 2** Macroeconomic stability as a necessary prerequisite for Ukraine's long term economic growth. *Source developed by the authors based on* (Cabinet of Ministers of Ukraine 2021)



**Fig. 3** Activation of foreign economic activity as a driver of sustainable economic growth in Ukraine. *Source developed by the authors based on* (Cabinet of Ministers of Ukraine 2021)

in Germany. As a result, the volume of exports of goods and services of Ukraine is lower than the compared countries (Cabinet of Ministers of Ukraine 2021).

Inefficient customs infrastructure complicates the international trade for Ukraine. The average time for documenting export operations in Ukraine is estimated at 66 h, at the same time, in EU 63% of customs declarations were processed in less than 5 min, 28% of declarations—from 5 min to 1 h. The existing architecture of functioning customs systems is outdated and contains conceptual shortcomings in the construction of the architecture of these systems from the point of view of modern IT technologies.

In the case of automobile points, the corresponding system is not built in accordance with the defined architecture (on central and territorial levels) and the functional implementation of intellectual video surveillance. The current structure does not allow to respond quickly, on time and in full capacity—there is no process automation, risk management systems, comprehensive information protection policies and countering cyber threats.

Taking into account the above, we can distinguish the following areas of improvement of customs infrastructure: creation of an updated unified automated information system of customs authorities; updating of the unified state information web portal “single window for international trade”; digitalization of infrastructure management and resource support for the functioning of automobile checkpoints; development of telecommunications and telecommunications services; implementation of institutional, organizational and technical changes in customs authorities in terms of the functioning of IT systems; creating conditions for countering cyber threats, forming a unified policy (Cabinet of Ministers of Ukraine 2021).

Strategic directions for the development of international economic relations as an important component of the concept of sustainable development of the Ukrainian economy include the following:

1. Relations with the EU: to deepen sectoral integration with the EU; to accelerate preparations for signing an agreement with the EU on conformity assessment and acceptability of industrial goods; to expand quotas and/or reduce the base customs rate; to introduce recommendations of the International Association of swaps and derivatives on the capital markets of Ukraine; to continue to improve the system of state regulation of Military-Technical Cooperation and Export Control; to step up activities to attract resources of HATO trust funds, to conclude offset contracts; to attach phytosanitary certificates to the electronic circulation system.
2. Participation in regional projects: to determine pilot projects for the development of transport and logistics infrastructure; to introduce electronic duty collection systems, car weighing systems and cars, automatic speed control systems.
3. Trade and economic relations with the countries of the world: to conduct an audit of the effectiveness of existing international agreements on free trade zones; to develop new free trade agreements based on the conducted economic research, taking into account the feasibility of its conclusion for the economy of Ukraine; to develop a single consistent policy on the selection of strategic

partners; to introduce an effective policy of promoting Ukrainian products; to ensure the approval and implementation of sectoral and cross-sectoral programs to support Ukrainian exporters.

It is worth adding that intangible assets, in particular reputation, have a great impact today on the results of the functioning of business and the state. Currently, intangible assets are more significant than tangible ones. Reputation is a kind of intangible asset that brings its own benefits. A strong reputation of the country leads to an increase in exports, an increase in international direct investment, an increase in the attractiveness of the country for tourists and talented specialists, etc. Research shows that the level of reputation of a particular country directly affects the willingness of foreigners to interact with this country. According to recent surveys, we live in a reputation economy where people think about the possibility of investing based on their perception of the country, trust, respect, and emotions that a particular country, its citizens, and the institutions that exist in it evoke. Therefore, the country needs a well-formed strategy that will help manage the level of confidence in Ukraine and accelerate the growth of the national economy.

For full-fledged, proactive management of the state's reputation, it is necessary that the ambitions of the state, the realities in which it operates, and its perception by stakeholders correspond to each other. In the context of reputation formation, it is worth focusing on the importance of creating effective tools for forming the necessary perception of Ukraine, using the available opportunities on the way to the set goals. In order to influence the perception of Ukraine by stakeholders, we need to understand how they perceive us today and what they expect from cooperation with Ukraine in the future. The key factor that negatively affects the level of reputation of the country is the low level of efficiency of the government and distrust of it. Poor perception of a country automatically reduces its investment attractiveness and attractiveness among the international community. At the present stage, the international reputation of a state indicates its economic and political strength, prosperity and high level of cultural development, is an indicator of the authority and success of the country's actions on the world stage.

## 5 Conclusion

Thus, sustainable economic development is primarily focused on people and improving their quality of life in a favorable socio-economic environment, an environmentally friendly, healthy, diverse natural environment. In addition, sustainable development meets the needs of the present, without affecting the ability of future generations to meet their own needs, and requires a concerted effort to create a comprehensive, sustainable and sustainable future for people and the planet.

To achieve sustainable development, it is extremely important to harmonize the three main elements: economic growth, social integration and environmental protection. These elements are interrelated, and they are all critical to the well-being of

individuals and societies. The eradication of poverty in all its forms and at all levels is an indispensable requirement for sustainable development. To achieve this goal, it is necessary to promote sustainable, inclusive and equitable economic growth that creates greater opportunities for all, reduces inequality, raises basic living standards, promotes equitable social development and inclusion, and integrated and sustainable management of natural resources and ecosystems.

A high intellectual level of human potential should ensure the country's competitiveness in the future. The implementation of the conceptual model of sustainable economic development of Ukraine is aimed at overcoming poverty through effective employment, high labor costs, accumulation of human and social capital, development of entrepreneurial activity of the population, strengthening the middle class, raising social standards and guarantees, as well as providing the necessary social support to vulnerable groups of the population.

To increase the level of public welfare in Ukraine, real implementation of the national strategy for sustainable development is necessary to ensure the organic unity of its components: consistent economic development, social progress, economic and environmental security in their interaction and mutual influence, balance and integration. This should also include institutional reform, innovation, competitiveness, and democratic transformation.

The public vision of Ukraine's development covers such targets for achievement as the well-being and health of the population, which will be ensured by innovative economic development based on the sustainable use of natural resources. The export structure provides for changes aimed at switching from raw materials and primary processed products to products and services with a high degree of added value. Economic growth will be based on a green economy model. Energy-saving measures and the application of energy-efficient practices should significantly reduce the energy intensity of gross domestic product. The share of clean energy production will steadily increase, replacing, first of all, traditional technologies, which will significantly reduce greenhouse gas emissions into the atmosphere. This will help improve the quality of life of the population without harming the environment and will become a significant factor in increasing life expectancy.

It is worth adding that the implementation of the sustainable development strategy requires compliance with the principles of the rule of law, democracy, good governance at all levels, and the creation of effective, efficient, inclusive and accountable institutions. Only institutional reforms in public administration can lead to systemic changes. The goal of the Sustainable Development Strategy is to ensure a high level and quality of life of Ukraine's population, to create favorable conditions for the activities of current and future generations, and stop the degradation of natural ecosystems by introducing a new model of economic growth based on the principles of sustainable development. In the process of developing and implementing new solutions to achieve the Sustainable Development Goals, Ukrainian companies will be able to open up new opportunities and reduce the level of acceptable risks. Global challenges to sustainable development are already market opportunities for those companies that are able to develop and implement innovative and effective solutions.

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# Investigating Economic Opportunities Based on Strategic Economic Sectors: Applying Input–Output and Interregional Input–Output Models



Sofyan Syahnur , Taufiq C. Dawood , and Yossi Diantimala 

**Abstract** This study investigates economic sectors' opportunities based on strategic economic sectors, both the strength of the backward and forward linkages of economic sectors in an economic region and among economic regions. This study uses the Input–Output Model (IOM) and the Interregional Input–Output Model (IRIOM). The data are Input–Output Table and Interregional Input–Output Table in 2016. The results by using IOM show that, in terms of economic area, Aceh province has several strategic economic sectors and economic sectors' opportunities (competitiveness) nationally based on dispersion power and sensitivity power. Generally, the electricity and gas procurement sector; and wholesale-retail trade, car repair, and motorcycles sector are the main economic sectors for Aceh province.

The result of the IRIOM used, the electricity and gas procurement sector is an important economic sector for Aceh. This economic sector can absorb the output produced by other economic sectors, both from Aceh and also from other economic areas (North Sumatera province). Meanwhile, the manufacturing sector is an important sector for North Sumatera. However, trade between the two economic areas has not been profitable for Aceh. North Sumatera greatly benefits from this interregional trade. This condition underlines that the level of economic dependence of Aceh is high on the economic sectors of North Sumatera. The negative consequence of this trade form is the increasing level of economic inequality between the two economic regions. It is necessary to build a strong concept of domestic trade between mutually beneficial economic areas by applying the specialization of certain economic sectors of each economic region. In general, such policies can produce the formulation of a cycle of domestic economic interrelationships that revolves around the mutual benefit of all economic regions in Indonesia. At the same time, the policy has a positive effect on economic strength between regions and the national economy as a whole.

**Keywords** Strategic economic sector · Economic sectors' opportunity · Input–Output Model · Interregional Input–Output Model

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S. Syahnur (✉) · T. C. Dawood · Y. Diantimala  
Universitas Syiah Kuala, Darussalam, Banda Aceh 23111, Indonesia  
e-mail: [kabari\\_sofyan@unsyiah.ac.id](mailto:kabari_sofyan@unsyiah.ac.id)

## 1 Introduction

Investigating the strategic economic sector is an important element in formulating the economic development plan of a region. This is highly related to efficiency and effectiveness in achieving the desired development goals in the context of the welfare of the people and also to a more resilient economy because it is supported by strategic and highly competitive economic sectors. These strategic economic sectors are reflected in the magnitude of the linkages between these economic sectors and other economic sectors. There are two classifications of linkages between these economic sectors, namely backward linkages and forward linkages. Backward linkage (power dispersion) is the linkage between economic sectors shown by one economic sector requiring intermediate inputs from the economic sector itself and also from other economic sectors in carrying out production. In this context, backward linkages point out demand for other sector outputs to be used as inputs between these economic sectors. Of course, backward linkages have a strong impetus for increasing production in other economic sectors. The greater the values of the backward linkage index of an economic sector, the greater the demand for the output of other sectors. Meanwhile, forward linkage (power of sensitivity) is the ability of an economic sector to provide input between the economic sector itself and other economic sectors. In other words, it represents the level of sensitivity of an economic sector in responding to the demand for intermediate inputs by other economic sectors. The greater the index of sensitivity, it shows the ability of the economic sector to provide input for other economic sectors. By using these two economic sector linkage index indicators, economic sectors that have a large backward linkage index and forward linkage index value, usually  $>1$ , are highlighted to be strategic economic sectors (Bathelt 1991; Ciobanu et al. 2004; Feser and Bergman 2000; Flegg et al. 1995; Hirschman 1958; Midmore et al. 2006; Schultz 1977; West et al. 1984). Furthermore, if the strategic economic sector is able to compete nationally, then the economic sector has a great opportunity to become a mainstay economic sector of an economic region.

In examining these strategic and high-potential economic sectors, this study uses not only the Input–Output model (henceforth, IOM) but also employs the Interregional Input–Output Model (henceforward, IRIOM). IOM provides specific indicators of an economic area related to strategic economic sectors and has great opportunities, both the strength of the backward and forward linkage of these economic sectors. Furthermore, IRIOM provides more detailed indicators of the opportunities and resilience of these strategic economic sectors compared to other economic sectors in the economic area, and even in the national economy, Indonesia. The combination of both IOM and IRIOM in investigating the strategic economic sectors of an economic region and at the same time the strategic opportunities of the economic sectors of an economic region is the most important contribution of this study. Another contribution is that this study will investigate strategic and non-strategic economic sectors based on the data classification of the Input–Output Table (hereafter, IOT) and the Interregional Input–Output Table (hereafter, IRIOT) both based on 17 economic sectors and also 52 economic sectors. The details of the data will show

more explicit opportunities regarding strategic economic sectors and their opportunities in an economic area compared to the strategic sectors of other economic regions nationally.

Therefore, this study differs from previous studies which only use IOM or IRIOM as an analytical tool to see the interaction of economic sectors. The previous study analyzed the agricultural sector to evaluate and plan agricultural policies in Nigeria which emphasizes the interaction of the Nigerian agricultural-non-agricultural sector (Byerlee and Halter 1974). They use an Input–Output simulation model which was developed to combine the agricultural sector and the interaction of the product market and the labor market. In addition, this model also has the potential to be used as a formal and informal sector analysis technique. In addition, the other study also used IOM to analyze economic integration in East Asian countries (Hasebe and Shrestha 2006). The results of their research show that the dependency structure is different in the regions of East Asian countries both at the macro level and the level of the production sectors. The dependence of the power of economic integration in East Asia on Japan, the USA, ROW (rest of the world) is relatively high. Moreover, there was a study to analyze the multiplier rate between countries using the IOT of six European Union (EU) countries (Dietzenbacher 2002). The multiplier is decomposed into the effect between countries, the effect of the spread between countries, and the effect of feedback between countries. The other previous study analyzed economic complexities in several OECD countries with IOM (Lopes et al. 2012).

## 2 Research Method

This study uses Aceh and Indonesia IOT data and IRIOT in 2016 data sourced from the Central Bureau of Statistics (CBS) of Aceh and Indonesia. The IOT and IRIOT are classified into 17 economic sectors and 52 economic sectors (IOT). In addition, IRIOT highly focuses on the interregional linkage of the economic region with other economic regions consisting of Aceh Province, North Sumatra Province, and other economic regions (Indonesia). Furthermore, the IOT and IRIOT will be analyzed to obtain a study of strategic economic sectors and economic opportunities for a region, both individually and in the aggregate form of forward and backward linkage indices between economic sectors. IOT is a table consisting of input structure and output allocation where the input structure consists of inputs between the production sector and primary inputs as well as output allocation consists of demand between the production sector and final demand. Meanwhile, IRIOT does not only look at the structure of the economic sectors of an economic area but also other economic sectors of the region as underlined from the intermediate input coefficient and the primary input coefficient between regions, thus showing the close interrelationships between economic regions through the trade coefficient. Both IOM and IRIOM are used to investigate strategic economic sectors and at the same time examine economic sectors that have economic opportunities for one economic area to the economy of other regions and even nationally.

To analyze the economic sectors and opportunities of the Acehese economy based on strategic economic sectors in the context of the national economy, this study uses IOM and IRIOM by looking at the forward and backward linkage indices of economic sectors of an economic region as well as economic sectors between regions. At the beginning of this study, IOM will be employed to investigate strategic economic sectors that have opportunities and competitive strengths compared to other economic sectors in driving the economy of an economic area. IOM uses the IOT classification of 17 economic sectors and IOT 52 economic sectors. IOM can be formulated simply as:

$$(I - A)X = F \text{ or } X = (I - A)^{-1}.F \tag{1}$$

Where I and A are the identity matrix and the input coefficient of an n x n matrix ( $\alpha_{ij} = \frac{a_{ij}}{A_j}$ ) and  $(I - A)^{-1}$  refers to Leontief inverse matrix or the Leontief technical coefficient. Meanwhile, X and F are the variables to be searched for (a total output vector) and the final demand (a vector of final demand), respectively. In addition, j and i denote the columns and rows of the matrix table. Column (j) shows the production inputs required by all economic sectors in an economy and row (i) indicates production inputs provided by an economic sector to other economic sectors. By using Eq. 1, we can look for strategic economic sectors and opportunities for these economic sectors to be developed because they have strong competitive forces with other economic sectors. The formula for backward linkage index (BLI) and forward linkage index (FLI) of economic sectors can be formulated as follows:

$$BLI = \frac{\sum jx_{ij}}{\frac{1}{n}(\sum i \sum jx_{ij})} \text{ and } FLI = \frac{\sum ix_{ij}}{\frac{1}{n}(\sum i \sum jx_{ij})} \tag{2}$$

Where x is the Leontief inverse matrix coefficient and n is the number of observed economic sectors. Then, Eq. 2 is multiplied by the value of the policy weight symbolized by w (weighed value), so that we get the strategic economic sector which is the sum of W\_BLI and W\_FLI and has a value greater than one (>1). Equation 2 becomes as follows:

$$W\_BLI = \left[ \frac{\sum jx_{ij}}{\frac{1}{n}(\sum i \sum jx_{ij})} \right].w \text{ and } W\_FLI = \left[ \frac{\sum ix_{ij}}{\frac{1}{n}(\sum i \sum jx_{ij})} \right].w \tag{3}$$

To obtain the value of opportunities of the economic sector and at the same time provide information about the level of competition with other economic sectors nationally, the BLI and FLI values of an economic area are compared with the national BLI and FLI values. The sum of these ratio values indicates the economic sector that has the opportunity to compete with other economic sectors nationally. A ratio value greater than 1 (>1) indicates an economic sector that has the opportunity and competes nationally, both in terms of backward and forward linkages. The total value of O\_BLI (the opportunity of economic sector based on backward linkage) and

O\_FLI (the opportunity of economic sector based on forward linkage) is a general economic sector's opportunity (GO). Furthermore, the letter A refers to a particular economic area and N indicates the national economic area. The formula can be formulated in Eq. 4 as follows:

$$O_{BLI} = \frac{\left[ \frac{\sum jx_{ij}}{\frac{1}{n}(\sum i \sum jx_{ij})} \right]_A}{\left[ \frac{\sum jx_{ij}}{\frac{1}{n}(\sum i \sum jx_{ij})} \right]_N} \text{ and } O_{FLI} = \frac{\left[ \frac{\sum ix_{ij}}{\frac{1}{n}(\sum i \sum jx_{ij})} \right]_A}{\left[ \frac{\sum ix_{ij}}{\frac{1}{n}(\sum i \sum jx_{ij})} \right]_N} \tag{4}$$

Then, IRIOM is used to assess strategic economic sectors and have opportunities on an interregional basis to compete with other economic sectors in other economic areas. IRIOM uses IRIOT data which is classified into 17 economic sectors. The form of IRIOM between these economic regions, in general, can be formulated as follows:

$$Z = \begin{bmatrix} Z^{AA} & Z^{AB} \\ Z^{BA} & Z^{BB} \end{bmatrix} \tag{5}$$

The use of A and B denotes the two IOTs between economic areas. Then the variable X is an estimate of economic sectors or  $X = \begin{bmatrix} X^A \\ X^B \end{bmatrix}$  and Y is the total output which is represented by  $Y = \begin{bmatrix} Y^A \\ Y^B \end{bmatrix}$ . In simple form is  $(I - A)X = Y$ , so that the matrix equation can be formulated as follows:

$$\begin{aligned} (I - A^{AA})X^A - A^{AB}X^B &= Y^A \\ -A^{BA}X^A + (I - A^{BB})X^B &= Y^B \end{aligned} \tag{6}$$

Equation 6 is employed as an equation to determine and analyze interregional strategic and economic opportunities of economic sectors of a region with other economic regions based on strategic economic sectors in the context of national economies. Another economic area in this study is the province of North Sumatra (NS) which is a province directly adjacent to the province of Aceh (A). Meanwhile, Indonesia's national economic region (I) is represented by 32 other provinces.

### 3 Results and Discussion

The results of this study show that there are five strategic economic sectors for Aceh because they have a total value of  $W\_BLI$  and  $W\_FLI$  exceeding 1 ( $>1$ ). The economic sectors are agriculture, forestry, and fisheries; processing industry, electricity and gas supply; wholesale and retail trade, repair of cars and motorcycles; and real estate. This gives a strong indication that these economic sectors are economic sectors that can make a large contribution to Aceh in encouraging other economic sectors through the demand for output used by these strategic economic sectors (dispersion power). In addition, these strategic economic sectors can provide input in the production process of other economic sectors (sensitivity power). Meanwhile, the sectors of the national economy (Indonesia) which are strategic economic sectors are mining and quarrying; processing industry; electricity and gas procurement; wholesale and retail trade, repair of cars and motorcycles; and transformation and warehousing. This is indicated by the total value of  $W\_BLI$  and  $W\_FLI$  exceeding 1. Based on these strategic economic sectors, this study can determine economic sectors that have the opportunity to be developed nationally. In other words, economic sectors that have strategic opportunities have national competitiveness (competitive power). This is reinforced by the value of the ratio of the value of the strategic economic sectors of Aceh to the value of the national strategic economic sectors (Indonesia). The economic sectors of Aceh Province that have opportunities and national competitiveness are the electricity and gas procurement sector; and wholesale and retail trade, repair of cars and motorcycles. In addition, the agriculture, forestry, and fishery sectors; and the real estate sector is a sector that has considerable opportunities for development. Meanwhile, the economic sectors that have the potential to be developed are the water supply sector, waste management, waste and recycling; construction; provision of accommodation and food and drink; mandatory government administration, defense and social security; education services; health services and social activities; and other services. Furthermore, the economic sectors of Aceh province which are strategic economic sectors, but are unable to compete nationally are the manufacturing industry; mining and excavation; and transportation and warehousing. This condition is shown in Table 1 and Table 2 by using 52 economic sectors (see Appendix).

The results of the study using IRIOM show that there are economic sectors that can absorb the output produced by other economic sectors, both from Aceh province and from other economic areas, so that they can be used as inputs in the production process in Aceh province. These economic sectors are the manufacturing industry (1.43); electricity and gas procurement (2.045); water supply, waste management, waste and recycling (1.111); construction (1.115); transportation and warehousing (1.121); provision of accommodation and food and drink (1.089); corporate services (1.014); government administration, defense and mandatory social security (1.008); and health services and social activities (1.061). This is because these economic

**Table 1.** Strategic Economic sectors and economic sectors' opportunities based on backward and forward linkage indices of Aceh Province and Indonesia according to 17 economic sectors, 2016

| Economic Sectors   | Aceh (A)                   |      |       |                            |       |       | Indonesia (I)              |       |       |                                   |       |       | Eco. Sectors' Opportunity (GO) |                                   |
|--|----------------------------|------|-------|----------------------------|-------|-------|----------------------------|-------|-------|-----------------------------------|-------|-------|--------------------------------|-----------------------------------|
|  | Strategic Economic Sectors |      |       | Strategic Economic Sectors |       |       | Strategic Economic Sectors |       |       | Eco. Sectors' Opportunity (O_BLI) |       |       |                                |                                   |
|  | BLI                        | FLI  | W_FLI | W_BLI                      | W_FLI | W_BLI | FLI                        | W_BLI | W_FLI | W_BLI                             | W_FLI | W_BLI |                                | Eco. Sectors' Opportunity (O_FLI) |
| Agriculture, Forestry and Fisheries                              | 0.83                       | 1.41 | 0.42  | 0.70                       | 0.54  | 1.12  | 0.77                       | 1.08  | 0.39  | 0.54                              | 0.93  | 1.08  | 1.30                           | 1.21                              |
| Mining and excavation  | 0.94                       | 1.04 | 0.47  | 0.52                       | 0.61  | 0.99  | 0.88                       | 1.21  | 0.44  | 0.61                              | 1.05  | 1.07  | 0.86                           | 0.95                              |
| Processing industry  | 1.13                       | 1.20 | 0.56  | 0.60                       | 1.18  | 1.16  | 1.04                       | 2.36  | 0.52  | 1.18                              | 1.70  | 1.08  | 0.51                           | 0.69                              |
| Electricity and Gas Supply                                       | 1.73                       | 1.96 | 0.87  | 0.98                       | 0.76  | 1.84  | 1.77                       | 1.52  | 0.89  | 0.76                              | 1.65  | 0.98  | 1.29                           | 1.12                              |
| Water Supply, Waste Management, Waste and Recycling              | 1.08                       | 0.69 | 0.54  | 0.35                       | 0.31  | 0.89  | 0.98                       | 0.63  | 0.49  | 0.31                              | 0.80  | 1.10  | 1.11                           | 1.10                              |
| Construction   | 1.04                       | 0.91 | 0.52  | 0.45                       | 0.40  | 0.97  | 1.09                       | 0.80  | 0.55  | 0.40                              | 0.95  | 0.95  | 1.13                           | 1.03                              |
| Wholesale and Retail Trade; Car and Motorcycle Repair            | 0.91                       | 1.38 | 0.45  | 0.69                       | 0.58  | 1.14  | 0.86                       | 1.16  | 0.43  | 0.58                              | 1.01  | 1.19  | 1.19                           | 1.13                              |
| Transportation and Warehousing                                   | 0.95                       | 1.05 | 0.47  | 0.53                       | 0.54  | 1.00  | 1.07                       | 1.07  | 0.54  | 0.54                              | 1.07  | 0.88  | 0.98                           | 0.93                              |
| Provision of Accommodation and Food and Drink                    | 1.11                       | 0.74 | 0.55  | 0.37                       | 0.37  | 0.93  | 1.05                       | 0.74  | 0.53  | 0.37                              | 0.90  | 1.05  | 1.00                           | 1.03                              |
| Information and Communication                                    | 0.84                       | 0.80 | 0.42  | 0.40                       | 0.51  | 0.82  | 0.95                       | 1.02  | 0.48  | 0.51                              | 0.98  | 0.88  | 0.79                           | 0.83                              |
| Financial Services and Insurance                                 | 0.82                       | 0.82 | 0.41  | 0.41                       | 0.50  | 0.82  | 0.83                       | 0.99  | 0.42  | 0.50                              | 0.91  | 0.98  | 0.82                           | 0.90                              |
| Real Estate  | 0.93                       | 1.09 | 0.47  | 0.55                       | 0.41  | 1.01  | 0.82                       | 0.76  | 0.41  | 0.38                              | 0.79  | 1.14  | 1.44                           | 1.28                              |
| Company Services   | 0.94                       | 0.85 | 0.47  | 0.43                       | 0.51  | 0.89  | 0.96                       | 1.03  | 0.48  | 0.51                              | 0.99  | 0.98  | 0.83                           | 0.90                              |
| Government Administration, Defense and Mandatory Social Security | 0.94                       | 0.83 | 0.47  | 0.42                       | 0.33  | 0.89  | 1.02                       | 0.67  | 0.51  | 0.33                              | 0.85  | 0.92  | 1.24                           | 1.05                              |
| Education Services   | 0.88                       | 0.69 | 0.44  | 0.35                       | 0.77  | 0.79  | 0.91                       | 0.63  | 0.45  | 0.32                              | 0.77  | 0.97  | 1.10                           | 1.02                              |
| Health Services and Social Activities                            | 1.02                       | 0.74 | 0.51  | 0.37                       | 0.84  | 0.88  | 1.04                       | 0.63  | 0.52  | 0.32                              | 0.84  | 0.98  | 1.16                           | 1.05                              |
| Other Services   | 0.91                       | 0.80 | 0.45  | 0.40                       | 0.35  | 0.85  | 0.94                       | 0.70  | 0.47  | 0.35                              | 0.82  | 0.97  | 1.15                           | 1.04                              |

Source: The calculation is based on Input-Output Table 2016 (I-O Table) with 17 economic sectors of Aceh Province and Indonesia. Data are sourced by Central Bureau of Statistics (CBS) of Aceh Province and Indonesia, 2016.

Notes: BLI and FLI refer to Backward Linkage Index and Forward Linkage Index. W\_BLI and W\_FLI are weighted BLI and FLI. The value of strategic economic sectors is a weighted value given by policy makers for each sector in the economy. This is largely determined by the direction of the development goals of each economic area. In this context, the weight values are given proportionally. While the value of economic opportunity (O\_BLI), (O\_FLI), and (GO) is the ratio value between BLI and FLI values of Aceh province with the national BLI and FLI, Indonesia.

**Table 2.** Strategic economic sectors based on interregional backward and forward linkage indices of Aceh Province, North Sumatera, and Indonesia according to 17 economic sectors, 2016

| Region   | Economic Sectors                                       | Part 1 of 2                          |              |       |      |      |      |                                     |             |       |       |       |       |                                  |       |        |        |                                  |              |       |      |      |      |             |             |       |       |              |       |       |              |       |        |        |  |  |  |  |
|--|--|--------------------------------------|--------------|-------|------|------|------|-------------------------------------|-------------|-------|-------|-------|-------|----------------------------------|-------|--------|--------|----------------------------------|--------------|-------|------|------|------|-------------|-------------|-------|-------|--------------|-------|-------|--------------|-------|--------|--------|--|--|--|--|
|  |  | Interregional Backward linkage (BIL) |              |       |      |      |      | Interregional Forward linkage (FIL) |             |       |       |       |       | Strategic Economic Sectors (BIL) |       |        |        | Strategic Economic Sectors (FIL) |              |       |      |      |      |             |             |       |       |              |       |       |              |       |        |        |  |  |  |  |
|  |  | IRIC Index                           | A            | NS    | A    | NS   | A    | IRIC Index                          | A           | NS    | A     | NS    | A     | NS                               | A     | NS     | A      | NS                               | A            | NS    |      |      |      |             |             |       |       |              |       |       |              |       |        |        |  |  |  |  |
| Aceh (A)   | Agriculture, Forestry and Fisheries                    | 1.38                                 | 0.788        | 1.23  | 0.04 | 0.11 | 2.21 | <b>1.26</b>                         | 2.081       | 0.122 | 0.003 | 0.983 | 0.006 | 0.006                            | 1.665 | 0.004  | 0.000  | 1.58                             | 0.903        | 1.39  | 0.04 | 0.16 | 1.57 | 0.90        | 1.532       | 0.036 | 0.002 | 1.109        | 0.005 | 0.008 | 1.226        | 0.003 | 0.000  |        |  |  |  |  |
|  | Mining and excavation                                  | 2.00                                 | <b>1.143</b> | 1.66  | 0.12 | 0.22 | 1.80 | <b>1.03</b>                         | 1.776       | 0.027 | 0.001 | 1.328 | 0.018 | 0.011                            | 1.421 | 0.002  | 0.000  | 3.58                             | <b>2.045</b> | 2.55  | 0.03 | 1.00 | 2.89 | <b>1.65</b> | 2.881       | 0.009 | 0.002 | <b>2.041</b> | 0.004 | 0.050 | <b>2.305</b> | 0.002 | 0.000  |        |  |  |  |  |
|  | Electricity and Gas Supply                             | 1.95                                 | 1.115        | 1.59  | 0.05 | 0.30 | 1.02 | 0.58                                | 1.021       | 0.001 | 0.000 | 1.275 | 0.008 | 0.015                            | 0.817 | 0.000  | 0.000  | 1.95                             | 1.115        | 1.54  | 0.10 | 0.32 | 1.34 | 0.76        | 1.335       | 0.003 | 0.000 | 1.228        | 0.015 | 0.016 | 1.068        | 0.000 | 0.000  |        |  |  |  |  |
|  | Construction   | 1.83                                 | 0.926        | 1.19  | 0.02 | 0.18 | 2.06 | 1.06                                | 1.719       | 0.005 | 0.001 | 1.478 | 0.005 | 0.005                            | 1.452 | 0.002  | 0.000  | 1.96                             | <b>1.211</b> | 1.39  | 0.01 | 0.17 | 1.10 | 1.56        | <b>0.88</b> | 1.551 | 0.009 | 0.001        | 1.114 | 0.005 | 0.027        | 1.241 | 0.002  | 0.000  |  |  |  |  |
|  | Wholesale and Retail Trade, Car and Motorcycle Repair  | 1.91                                 | <b>1.089</b> | 1.63  | 0.11 | 0.17 | 1.10 | 0.63                                | 1.095       | 0.001 | 0.000 | 1.305 | 0.016 | 0.008                            | 0.876 | 0.000  | 0.000  | 1.59                             | 0.909        | 1.24  | 0.04 | 0.32 | 1.18 | 0.67        | 1.178       | 0.002 | 0.000 | 0.992        | 0.006 | 0.016 | 0.943        | 0.001 | 0.000  |        |  |  |  |  |
|  | Transport and Storage                                  | 1.42                                 | 0.810        | 1.21  | 0.04 | 0.18 | 1.21 | 0.69                                | 1.206       | 0.003 | 0.001 | 0.965 | 0.006 | 0.009                            | 0.965 | 0.001  | 0.000  | 1.59                             | 0.908        | 1.37  | 0.03 | 0.19 | 1.61 | 0.92        | 1.607       | 0.006 | 0.000 | 1.097        | 0.004 | 0.010 | 1.285        | 0.001 | 0.000  |        |  |  |  |  |
|  | Information and Communication                          | 1.78                                 | <b>1.014</b> | 1.38  | 0.10 | 0.30 | 1.26 | 0.72                                | 1.255       | 0.002 | 0.001 | 1.104 | 0.015 | 0.015                            | 1.004 | 0.001  | 0.000  | 1.77                             | <b>1.008</b> | 1.39  | 0.06 | 0.31 | 1.23 | 0.70        | 1.224       | 0.001 | 0.000 | 1.113        | 0.009 | 0.016 | 0.979        | 0.000 | 0.000  |        |  |  |  |  |
|  | Financial Services and Insurance                       | 1.59                                 | 0.907        | 1.30  | 0.09 | 0.19 | 1.02 | 0.58                                | 1.019       | 0.000 | 0.000 | 1.113 | 0.009 | 0.016                            | 0.979 | 0.000  | 0.000  | 1.86                             | <b>1.061</b> | 1.50  | 0.10 | 0.26 | 1.09 | 0.62        | 1.085       | 0.001 | 0.000 | 1.200        | 0.015 | 0.013 | 0.868        | 0.000 | 0.000  |        |  |  |  |  |
|  | Real Estate  | 1.62                                 | 0.924        | 1.34  | 0.05 | 0.23 | 1.18 | 0.67                                | 1.173       | 0.002 | 0.000 | 1.072 | 0.008 | 0.011                            | 0.939 | 0.000  | 0.000  | 1.62                             | 0.924        | 1.34  | 0.05 | 0.23 | 1.18 | 0.67        | 1.173       | 0.002 | 0.000 | 1.072        | 0.008 | 0.011 | 0.939        | 0.000 | 0.000  |        |  |  |  |  |
|  | Government Administration, Defense and Social Security |                                      |              |       |      |      |      |                                     |             |       |       |       |       |                                  |       |        |        |                                  |              |       |      |      |      |             |             |       |       |              |       |       |              |       |        |        |  |  |  |  |
|  | Health Services and Social Activities                  |                                      |              |       |      |      |      |                                     |             |       |       |       |       |                                  |       |        |        |                                  |              |       |      |      |      |             |             |       |       |              |       |       |              |       |        |        |  |  |  |  |
|  | Other Services   |                                      |              |       |      |      |      |                                     |             |       |       |       |       |                                  |       |        |        |                                  |              |       |      |      |      |             |             |       |       |              |       |       |              |       |        |        |  |  |  |  |
|  | Sumatera Utara (NS)                                    | Agriculture, Forestry and Fisheries  | 1.38         | 0.786 | 1.27 | 0.01 | 0.09 | 2.03                                | <b>1.60</b> | 1.882 | 0.137 | 0.014 | 1.014 | 0.002                            | 0.005 | 1.505  | 0.020  | 0.007                            | 1.77         | 1.009 | 1.43 | 0.04 | 0.30 | 1.09        | 0.621       | 1.049 | 0.032 | 0.008        | 1.140 | 0.007 | 0.015        | 0.839 | 0.0012 | 0.0004 |  |  |  |  |
|  |  | Mining and excavation                | 2.10         | 1.199 | 1.79 | 0.04 | 0.27 | 3.56                                | 2.032       | 2.878 | 0.635 | 0.048 | 1.430 | 0.006                            | 0.014 | 2.303  | 0.072  | 0.002                            | 3.12         | 1.778 | 1.66 | 0.01 | 1.44 | 1.88        | 1.071       | 1.859 | 0.015 | 0.003        | 1.331 | 0.001 | 0.072        | 1.487 | 0.0005 | 0.002  |  |  |  |  |
|  |  | Electricity and Gas Supply           | 1.74         | 0.993 | 1.47 | 0.01 | 0.26 | 1.02                                | 0.581       | 1.018 | 0.001 | 0.000 | 1.179 | 0.002                            | 0.013 | 0.815  | 0.000  | 0.000                            | 2.12         | 1.210 | 1.63 | 0.02 | 0.47 | 1.09        | 0.622       | 1.089 | 0.001 | 0.000        | 1.307 | 0.002 | 0.023        | 0.872 | 0.000  | 0.000  |  |  |  |  |
| Construction   |  | 1.37                                 | 0.893        | 1.32  | 0.01 | 0.24 | 2.08 | 1.170                               | 1.913       | 0.126 | 0.013 | 1.057 | 0.001 | 0.012                            | 1.530 | 0.020  | 0.007  | 1.89                             | 1.079        | 1.62  | 0.04 | 0.24 | 1.35 | 0.770       | 1.339       | 0.008 | 0.003 | 1.293        | 0.005 | 0.012 | 1.071        | 0.004 | 0.000  |        |  |  |  |  |
| Wholesale and Retail Trade, Car and Motorcycle Repair  |  | 1.66                                 | 0.949        | 1.36  | 0.01 | 0.30 | 1.22 | 0.694                               | 1.206       | 0.007 | 0.003 | 1.088 | 0.001 | 0.015                            | 0.965 | 0.005  | 0.002  | 1.66                             | 0.949        | 1.36  | 0.01 | 0.30 | 1.22 | 0.694       | 1.206       | 0.007 | 0.003 | 1.088        | 0.001 | 0.015 | 0.965        | 0.005 | 0.002  |        |  |  |  |  |
| Transport and Storage                                  |  | 1.34                                 | 0.767        | 1.19  | 0.00 | 0.15 | 1.37 | 0.779                               | 1.340       | 0.017 | 0.009 | 0.954 | 0.001 | 0.007                            | 1.072 | 0.0014 | 0.0005 | 1.42                             | 0.807        | 1.22  | 0.00 | 0.19 | 1.34 | 0.767       | 1.336       | 0.007 | 0.001 | 0.977        | 0.000 | 0.010 | 1.068        | 0.002 | 0.000  |        |  |  |  |  |
| Information and Communication                          |  | 1.67                                 | 0.954        | 1.40  | 0.01 | 0.27 | 1.35 | 0.770                               | 1.336       | 0.011 | 0.002 | 1.118 | 0.001 | 0.013                            | 1.069 | 0.003  | 0.001  | 1.59                             | 0.909        | 1.39  | 0.01 | 0.20 | 1.08 | 0.619       | 1.083       | 0.001 | 0.000 | 1.111        | 0.001 | 0.010 | 0.867        | 0.000 | 0.000  |        |  |  |  |  |
| Financial Services and Insurance                       |  | 1.59                                 | 0.909        | 1.39  | 0.01 | 0.20 | 1.08 | 0.619                               | 1.083       | 0.001 | 0.000 | 1.111 | 0.001 | 0.010                            | 0.867 | 0.000  | 0.000  | 1.60                             | 0.953        | 1.30  | 0.01 | 0.19 | 1.06 | 0.605       | 1.060       | 0.001 | 0.000 | 1.103        | 0.001 | 0.007 | 0.845        | 0.000 | 0.000  |        |  |  |  |  |
| Real Estate  |  | 1.73                                 | 0.984        | 1.48  | 0.01 | 0.23 | 1.06 | 0.693                               | 1.086       | 0.000 | 0.000 | 1.122 | 0.001 | 0.003                            | 0.945 | 0.000  | 0.000  | 1.62                             | 0.923        | 1.40  | 0.02 | 0.20 | 1.18 | 0.673       | 1.175       | 0.004 | 0.001 | 1.122        | 0.002 | 0.010 | 0.940        | 0.001 | 0.000  |        |  |  |  |  |
| Government Administration, Defense and Social Security |  |                                      |              |       |      |      |      |                                     |             |       |       |       |       |                                  |       |        |        |                                  |              |       |      |      |      |             |             |       |       |              |       |       |              |       |        |        |  |  |  |  |
| Health Services and Social Activities                  |  |                                      |              |       |      |      |      |                                     |             |       |       |       |       |                                  |       |        |        |                                  |              |       |      |      |      |             |             |       |       |              |       |       |              |       |        |        |  |  |  |  |
| Other Services   |  |                                      |              |       |      |      |      |                                     |             |       |       |       |       |                                  |       |        |        |                                  |              |       |      |      |      |             |             |       |       |              |       |       |              |       |        |        |  |  |  |  |

(continued)



Table 2. (continued)

| Region        | Economic Sectors   | IRIC | IRIC Index | I     | A_J    | NS_J    | IRIC | IRIC Index   | I     | I_A   | I_NS  | I            | A_J   | NS_J  | I     | I_A   | I_NS   | I      | I_A | I_NS |
|---------------|--|------|------------|-------|--------|---------|------|--------------|-------|-------|-------|--------------|-------|-------|-------|-------|--------|--------|-----|------|
|               |  |      |            |       |        |         |      |              |       |       |       |              |       |       |       |       |        |        |     |      |
| Indonesia (I) | Agriculture, Forestry and Fisheries                              | 1.30 | 0.744      | 1.299 | 0.0007 | 0.00411 | 2.35 | <b>1.343</b> | 1.731 | 0.328 | 0.295 | 1.040        | 0.000 | 0.000 | 0.000 | 1.385 | 0.0443 | 0.0148 |     |      |
|               | Mining and excavation  | 1.49 | 0.848      | 1.481 | 0.0008 | 0.00455 | 3.04 | <b>1.737</b> | 2.022 | 0.508 | 0.515 | 1.185        | 0.000 | 0.000 | 0.000 | 1.617 | 0.0773 | 0.0258 |     |      |
|               | Processing industry  | 1.79 | 1.014      | 1.797 | 0.0011 | 0.00478 | 5.98 | <b>2.238</b> | 2.566 | 0.777 | 1.112 | <b>2.358</b> | 0.000 | 0.000 | 0.000 | 2.989 | 0.0656 | 0.0156 |     |      |
|               | Electricity, gas and water supply                                | 2.06 | 0.987      | 2.047 | 0.0021 | 0.00728 | 2.21 | <b>1.817</b> | 1.839 | 0.266 | 0.277 | 1.358        | 0.000 | 0.000 | 0.000 | 2.089 | 0.0488 | 0.0168 |     |      |
|               | Water Supply, Waste Management, Waste and Recycling              | 1.65 | 0.940      | 1.643 | 0.0007 | 0.00487 | 1.06 | <b>0.607</b> | 1.039 | 0.003 | 0.021 | 1.314        | 0.000 | 0.000 | 0.000 | 0.831 | 0.0031 | 0.0010 |     |      |
|               | Construction   | 1.80 | 1.027      | 1.785 | 0.0011 | 0.01448 | 1.45 | <b>0.830</b> | 1.330 | 0.078 | 0.046 | 1.428        | 0.000 | 0.000 | 0.001 | 1.064 | 0.0069 | 0.0023 |     |      |
|               | Wholesale and Retail Trade; Car and Motorcycle Repair            | 1.44 | 0.824      | 1.439 | 0.0004 | 0.00428 | 2.94 | <b>1.677</b> | 2.062 | 0.445 | 0.433 | 1.151        | 0.000 | 0.000 | 0.000 | 1.650 | 0.0650 | 0.0217 |     |      |
|               | Transportation and Warehousing                                   | 1.78 | 1.014      | 1.769 | 0.0008 | 0.00761 | 2.39 | <b>1.363</b> | 1.816 | 0.367 | 0.206 | 1.415        | 0.000 | 0.000 | 0.001 | 1.453 | 0.0309 | 0.0103 |     |      |
|               | Provision of Accommodation and Food and Drink                    | 1.74 | 0.994      | 1.725 | 0.0016 | 0.016   | 1.43 | <b>0.817</b> | 1.240 | 0.118 | 0.214 | 1.232        | 0.000 | 0.000 | 0.001 | 0.992 | 0.0107 | 0.0036 |     |      |
|               | Information and Communication                                    | 1.54 | 0.881      | 1.541 | 0.0005 | 0.00376 | 2.02 | <b>1.151</b> | 1.686 | 0.181 | 0.218 | 1.089        | 0.000 | 0.000 | 0.000 | 1.349 | 0.0321 | 0.0107 |     |      |
|               | Financial Services and Insurance                                 | 1.36 | 0.738      | 1.361 | 0.0003 | 0.00305 | 2.13 | <b>1.213</b> | 1.656 | 0.191 | 0.278 | 1.089        | 0.000 | 0.000 | 0.000 | 1.325 | 0.0416 | 0.0139 |     |      |
|               | Real Estate Activities   | 1.52 | 0.835      | 1.529 | 0.0004 | 0.00312 | 2.02 | <b>1.213</b> | 1.656 | 0.191 | 0.278 | 1.089        | 0.000 | 0.000 | 0.000 | 1.325 | 0.0416 | 0.0139 |     |      |
|               | Community, Social and Cultural Services                          | 1.56 | 0.889      | 1.553 | 0.0005 | 0.00398 | 2.66 | <b>1.518</b> | 1.754 | 0.564 | 0.343 | 1.242        | 0.000 | 0.000 | 0.000 | 1.403 | 0.0514 | 0.0171 |     |      |
|               | Government Administration, Defense and Mandatory Social Security | 1.69 | 0.962      | 1.678 | 0.0009 | 0.00775 | 1.16 | <b>0.661</b> | 1.103 | 0.023 | 0.032 | 1.343        | 0.000 | 0.000 | 0.000 | 0.883 | 0.0048 | 0.0016 |     |      |
|               | Education Services   | 1.51 | 0.861      | 1.502 | 0.0006 | 0.00633 | 1.06 | <b>0.605</b> | 1.046 | 0.007 | 0.007 | 1.201        | 0.000 | 0.000 | 0.000 | 0.837 | 0.0011 | 0.0004 |     |      |
|               | Health Services and Social Activities                            | 1.74 | 0.991      | 1.726 | 0.0009 | 0.00985 | 1.07 | <b>0.611</b> | 1.052 | 0.008 | 0.011 | 1.381        | 0.000 | 0.000 | 0.000 | 0.842 | 0.0016 | 0.0005 |     |      |
|               | Other Services   | 1.54 | 0.881      | 1.538 | 0.0007 | 0.00647 | 1.35 | <b>0.769</b> | 1.163 | 0.126 | 0.060 | 1.230        | 0.000 | 0.000 | 0.000 | 0.930 | 0.0090 | 0.0020 |     |      |

Source: The calculation is based on the Interregional Input-Output Table 2016 (IRIO Table) with 17 economic sectors of 34 provinces in Indonesia. Data are sourced by Central Bureau of Statistics (CBS) of Indonesia, 2016.

Notes: IRIC refer to Interregional Input Coefficient based on Backward Linkage Index and Forward Linkage. RIC and TC are Regional Input Coefficient and Trade Coefficient based on Backward and Forward Linkages Indices. The value of strategic economic sectors is the value of the weight given by policy makers to each sector of the economy. These are largely determined by the direction of the development goals of each economic area. In this context, the weight values are given disproportionately, where IIC weight is greater than TC weight. This reflects the government's economic policy that is oriented towards the strength of the economic sector in the economic area (RIC) as its main priority compared to trade policy (TC).

sectors have an Interregional input coefficient Index (IRIC index) based on backward interregional linkage (BIL) of more than 1. Especially in Aceh province, electricity and gas procurement (2.045) is the economic sector that absorbs the largest output generated by other economic sectors, both from Aceh province and from other economic areas where the IRIC index value exceeds two ( $>2$ ). In this context, the economic sectors that require the provision of output to be used as inputs for the production process in Aceh province originating from other economic areas (North Sumatra Province) are the manufacturing industry (0.12); construction (0.10); provision of accommodation and food and drink (0.11); government administration, defense and mandatory social security (0.10); and health services and social activities (0.10). This value is the value of the trade coefficient (TC NS\_A) between the province of Aceh and North Sumatra which has a figure above 10%. Table 3 shows the interregional linkages between economic sectors, both interregional backward linkage (BIL) and interregional forward linkage (FIL).

Meanwhile, the IRIC index value based on the FIL shows that four economic sectors have future linkages with other economic sectors. In other words, the four economic sectors are economic sectors that provide inputs for other economic sectors in the production process, especially Aceh province. These economic sectors are agriculture, forestry, and fisheries (1.26); processing industry (1.03); electricity and gas procurement (1.65); and wholesale and retail trade; car and motorcycle repair (1.18). In this case, the contribution of the province of Aceh to the economic sectors in the province of North Sumatra related to the provision of production inputs in the region is only from the agriculture, forestry, and fishery sector (0.122). This value is the value of the trade coefficient (TC A\_NS) between the province of Aceh and North Sumatra which has a figure above 10%.

On the other hand, North Sumatra province has several economic sectors with IRIC Index values exceeding 1 ( $>1$ ) based on BIL, namely the mining and quarrying sector (1.009); processing industry (1.199); electricity and gas procurement (1.778); construction (1.210); transportation and warehousing (1.074); and provision of accommodation and food and drink (1.079). However, the contribution of the economic sectors of the Aceh province to the economic sectors in the province of North Sumatra is very small. This is reinforced by the value of TC A\_NS below the value of 10%. This condition indicates that the level of dependence of the province of Aceh on economic sectors in the province of North Sumatra is very high. Meanwhile, the economic sectors of North Sumatra province have an IRIC index based on FIL more than one ( $>1$ ), namely agriculture, forestry, and fisheries (1.160); processing industry (2.032); electricity and gas procurement (1.071); wholesale and retail trade, car and motorcycle repair (1.170); and transportation and warehousing (1.070). In this context, the manufacturing sector is an important sector for the province of North Sumatra with the IRIC index exceeding two ( $>2$ ).

The results of this study also show that the IRIC index based on BIL and FIL between Aceh and North Sumatra are very different. Aceh Province has its dominant economic sector in the electricity and gas procurement sector based on the IRIC index from the BIL (2.045). Meanwhile, North Sumatra province has its dominant economic sector in the manufacturing sector based on the IRIC index from the FIL (2.032). This shows the interconnectedness of economic sectors between the two very close economic areas with different trade consequences. This means that the trade between the two economic areas does not show the trade strength of the two economic areas that are mutually beneficial. However, the trade that has been taking place between the two economic regions has greatly benefited the province of North Sumatra compared to the province of Aceh. Therefore, the economic sectors in the province of Aceh have a high level of dependence on the economic sectors of the province of North Sumatra. In general, the trade consequences harm the national economy as a whole because it can lead to a widening level of economic inequality between the two economic regions. This condition will weaken the national economy in general if this condition also occurs in other provinces in Indonesia. Supposedly, domestic trade between economic regions is mutually beneficial so that it has a positive effect on economic strength between regions and at the same time the national economy. Of course, government policy must direct the specialization aspect to certain economic sectors in each economic area, to provide economic linkages that are able to reduce the level of economic inequality between small regions. Thus, it can form the formulation of a rotating economic cycle with the mutual benefit of all economic areas.

Furthermore, Table 4 (Appendix) shows economic sectors that have a value of opportunity to compete with other economic sectors, both between provinces and nationally. Determination of economic sectors that have high competitiveness so that they have the opportunity to be developed based on the results of the comparison of the IRIC Index and RIC values between Aceh province and North Sumatra province and between Aceh province and the national economy (Indonesia, including 32 provinces). The IRIC Index and RIC ratios based on BIL and FIL as shown in Table 4 underline several economic sectors as strategic economic sectors and economic sectors that have great opportunities (high competitiveness) with other economic sectors in other economic areas, even nationally. Based on the IRIC Index value based on the BIL, the province of Aceh has 70.59% of economic sectors that have the opportunity to be developed inter-economically because they have great competitiveness with the province of North Sumatra. However, some RIC values of economic sectors based on BIL in Aceh province are only 52.94% of economic sectors that are competitive with other economic regions, North Sumatra province. This explains that there are economic sectors that have great opportunities because they have high competitiveness, but developments in these economic areas are unable to be developed, such as the agriculture, forestry, and fisheries sectors (1.00); transportation and warehousing (1.04); company services (1.06); and other services (1.00). However, the wholesale and retail trade sector; car and motorcycle repairs has an RIC value based on a BIL of more than one (1.01) and an IRIC value of less than one (0.98). This means that this sector has strong competitiveness in the economic

area of Aceh province, but does not have strong competitiveness between regions, in this context competition with the economic region of North Sumatra province. Table 4 provides a detailed description of the activities of economic sectors between economic regions, namely Aceh province, North Sumatra province, and the national economy (Indonesia).

## 4 Conclusions and Recommendations

This study aims to examine specific indicators of an economic area related to strategic economic sectors and economic sectors that have national opportunities, both based on the strength of the backward and forward linkages of these economic sectors using IOM. IOT data classified as 17 and 52 economic sectors are used. In addition, this study also investigates the opportunities and resilience of these strategic economic sectors compared to other economic sectors in the economic area, and even nationally (Indonesia) using IRIOM. IOM and IRIOM used to examine the strategic economic sectors of an economic region and the strategic opportunities of a particular economic region are the most important contributions of this study.

The results of this study based on IOM show that, in terms of economic area, Aceh province has several economic sectors that are strategic and have the opportunity (high competitiveness) nationally. This underlines that these economic sectors are able to make a large contribution to the province of Aceh in encouraging other economic sectors through the demand for output used by this strategic economic sector (dispersion power). In addition, several strategic economic sectors are able to provide input in the production process of other economic sectors (sensitivity power). These economic sectors consist of agriculture, forestry, and fisheries; processing industry, electricity and gas supply; wholesale and retail trade, repair of cars, and motorcycles; and real estate. In general, the economic sectors of Aceh Province that have high opportunities and competitiveness nationally are only the electricity and gas procurement sector; and wholesale and retail trade, repair of cars and motorcycles. The detailed results of this study (IOM, 52 economic sectors) show strategic economic sectors that have the national opportunity to be developed, consisting of the annual and annual plantation sectors; other mining and quarrying; industry of wood, goods made of wood and cork and woven goods of bamboo, rattan and the like; non-metal mineral industry; electricity; construction; and wholesale and retail trade, not cars and motorcycles. In addition, the province of Aceh has several economic sectors that have the potential to be developed because of their ability to compete nationally.

Based on the results of the IRIOM study with a classification of 17 economic sectors, it is explained that the electricity and gas procurement sector is an important economic sector for the province of Aceh. This economic sector can absorb the output produced by other economic sectors, both from Aceh province and from other economic regions, the largest based on the IRIC index value of the BIL exceeding the value of two ( $>2$ ). Meanwhile, the manufacturing sector is an important sector for the province of North Sumatra with an IRIC index exceeding two ( $>2$ ) based on FIL. However, the trade between the two economic areas does not show the strength of the trade between the two economic areas which have been mutually beneficial so far. The province of North Sumatra benefits greatly compared to the province of Aceh. The level of dependence of the economic sectors in the province of Aceh is very large on the economic sectors of the province of North Sumatra. The consequences of this trade have a negative impact on the increasing level of economic inequality that is widening between the two economic regions. This condition weakens the national economy in general if this condition also occurs in other 32 provinces in Indonesia. Therefore, a mutually beneficial concept of domestic trade between economic regions is needed by applying the concept of specialization of certain economic sectors, so as to have a positive effect on economic strength between regions and at the same time the national economy. Government policies must be able to form the formulation of a cycle of domestic economic interrelationships that revolves around the mutual benefit of all economic regions in Indonesia.

## **Appendix**

**Table 3.** Strategic economic sectors and economic sectors' opportunity based on backward and forward linkage indices of aceh province and Indonesia According to 52 Economic Sectors, 2016

| Economic Sectors   | Aceh (A) |      |       |       |                             |      |      |       | Indonesia (I) |                             |  |  |      |      |  |  | General Eco<br>Sector's<br>Opportunity<br>(GO) |
|--|----------|------|-------|-------|-----------------------------|------|------|-------|---------------|-----------------------------|--|--|------|------|--|--|--|
|  | BLI      | FLI  | W_BLI | W_FLI | Strategic<br>Eco<br>Sectors | BLI  | FLI  | W_BLI | W_FLI         | Strategic<br>Eco<br>Sectors | Eco Sector's<br>Opportunity<br>(O_BLI) | Eco Sector's<br>Opportunity<br>(O_FLI) |      |      |  |  |  |
| Food Crops/Agriculture   | 0.85     | 1.10 | 0.42  | 0.35  | 0.97                        | 0.76 | 0.22 | 0.38  | 0.46          | 0.84                        | 1.12                                   | 1.20                                   | 1.16 | 1.16 |  |  |  |
| Horticulture and More  | 0.84     | 0.81 | 0.42  | 0.40  | 0.83                        | 0.75 | 0.72 | 0.38  | 0.36          | 0.74                        | 1.12                                   | 1.12                                   | 1.12 | 1.12 |  |  |  |
| Annual and Annual Plantations  | 0.91     | 1.42 | 0.47  | 0.71  | 1.17                        | 0.99 | 1.13 | 0.40  | 0.57          | 0.96                        | 1.15                                   | 1.26                                   | 1.21 | 1.21 |  |  |  |
| farm   | 0.83     | 0.78 | 0.42  | 0.39  | 0.81                        | 0.82 | 0.67 | 0.41  | 0.34          | 0.88                        | 0.98                                   | 1.31                                   | 1.13 | 1.13 |  |  |  |
| Agricultural and Hunting Services  | 0.82     | 1.10 | 0.41  | 0.55  | 0.96                        | 0.73 | 0.88 | 0.37  | 0.44          | 0.81                        | 1.01                                   | 1.16                                   | 1.08 | 1.08 |  |  |  |
| Forestry and Logging   | 0.84     | 0.90 | 0.42  | 0.45  | 0.87                        | 0.75 | 0.78 | 0.37  | 0.39          | 0.76                        | 1.12                                   | 1.25                                   | 1.19 | 1.19 |  |  |  |
| Fishery  | 0.99     | 1.35 | 0.49  | 0.67  | 1.17                        | 0.84 | 1.71 | 0.42  | 0.86          | 1.28                        | 1.18                                   | 0.79                                   | 1.14 | 1.14 |  |  |  |
| Oil, Gas and Geothermal Mining   | 1.04     | 0.88 | 0.52  | 0.44  | 0.96                        | 0.99 | 1.08 | 0.49  | 0.54          | 1.04                        | 1.06                                   | 0.81                                   | 0.93 | 0.93 |  |  |  |
| Coal and Lignite Mining  | 0.94     | 0.72 | 0.47  | 0.36  | 0.83                        | 0.87 | 0.89 | 0.44  | 0.44          | 0.88                        | 1.08                                   | 0.80                                   | 0.94 | 0.94 |  |  |  |
| Mining and Other Quarry  | 0.98     | 1.16 | 0.49  | 0.38  | 1.07                        | 0.83 | 0.97 | 0.44  | 0.49          | 0.93                        | 1.12                                   | 1.20                                   | 1.16 | 1.16 |  |  |  |
| Food Industry and Oil and Gas Refinery   | 0.71     | 0.71 | 0.36  | 0.36  | 0.71                        | 0.33 | 1.54 | 0.46  | 0.77          | 1.24                        | 0.72                                   | 0.46                                   | 0.38 | 0.38 |  |  |  |
| Food Processing Industry   | 1.26     | 1.20 | 0.63  | 0.60  | 1.23                        | 1.17 | 1.73 | 0.39  | 0.87          | 1.45                        | 1.08                                   | 0.72                                   | 0.98 | 0.98 |  |  |  |
| Textile and Apparel Industry   | 0.92     | 0.78 | 0.45  | 0.36  | 0.82                        | 0.83 | 0.66 | 0.51  | 0.33          | 0.73                        | 1.01                                   | 1.07                                   | 1.09 | 1.09 |  |  |  |
| Leather, Leather Goods and Footwear Industry   | 1.10     | 0.78 | 0.45  | 0.39  | 0.94                        | 1.06 | 0.60 | 0.53  | 0.39          | 1.02                        | 1.03                                   | 0.80                                   | 0.92 | 0.92 |  |  |  |
| Industry of wood, goods made of wood and cork and woven goods from bamboo, rattan and the like | 1.05     | 0.72 | 0.52  | 0.36  | 0.88                        | 1.09 | 0.75 | 0.54  | 0.38          | 0.92                        | 0.96                                   | 0.95                                   | 0.96 | 0.96 |  |  |  |
| Paper and Paper Goods Industry, Printing and Recording Media Reproduction                      | 1.10     | 0.95 | 0.55  | 0.48  | 1.02                        | 1.11 | 0.81 | 0.56  | 0.40          | 0.96                        | 0.98                                   | 1.18                                   | 1.07 | 1.07 |  |  |  |
| Chemical, Pharmaceutical and Traditional Medicine Industry                                     | 1.05     | 0.72 | 0.53  | 0.36  | 0.89                        | 1.16 | 1.11 | 0.58  | 0.55          | 1.13                        | 0.91                                   | 0.65                                   | 0.78 | 0.78 |  |  |  |
| Rubber Industry, Rubber and Plastic Goods  | 1.22     | 1.33 | 0.61  | 0.67  | 1.27                        | 1.06 | 1.66 | 0.53  | 0.83          | 1.36                        | 1.15                                   | 0.81                                   | 0.94 | 0.94 |  |  |  |
| Non-Metal Mineral Industry   | 1.08     | 0.76 | 0.54  | 0.38  | 0.92                        | 1.20 | 0.98 | 0.60  | 0.49          | 1.09                        | 0.90                                   | 0.77                                   | 0.84 | 0.84 |  |  |  |
| Base Metal Industry  | 1.19     | 0.89 | 0.60  | 0.45  | 1.04                        | 1.17 | 0.80 | 0.58  | 0.40          | 0.98                        | 1.02                                   | 1.12                                   | 1.06 | 1.06 |  |  |  |
| Metal, Computer, Electronic, Optical and Electrical Equipment Industry                         | 1.10     | 0.72 | 0.55  | 0.36  | 0.91                        | 1.14 | 0.82 | 0.57  | 0.41          | 0.98                        | 0.97                                   | 0.87                                   | 0.93 | 0.93 |  |  |  |
| YTDL Machinery and Equipment Industry  | 0.96     | 0.90 | 0.48  | 0.45  | 0.93                        | 1.01 | 1.05 | 0.51  | 0.53          | 1.03                        | 0.95                                   | 0.85                                   | 0.90 | 0.90 |  |  |  |
| Transport Equipment Industry   | 0.99     | 0.71 | 0.50  | 0.36  | 0.85                        | 1.01 | 0.78 | 0.51  | 0.39          | 0.90                        | 0.98                                   | 0.92                                   | 0.95 | 0.95 |  |  |  |
| Furniture Industry   | 1.11     | 0.71 | 0.55  | 0.36  | 0.91                        | 0.99 | 1.02 | 0.50  | 0.51          | 1.01                        | 1.12                                   | 0.70                                   | 0.91 | 0.91 |  |  |  |
| Other Processing Industries, Machinery and Equipment   | 1.08     | 0.74 | 0.54  | 0.37  | 0.91                        | 1.10 | 0.64 | 0.55  | 0.32          | 0.87                        | 0.98                                   | 1.16                                   | 1.05 | 1.05 |  |  |  |
| Repair and Installation Services   | 0.98     | 0.78 | 0.49  | 0.39  | 0.88                        | 0.96 | 0.73 | 0.48  | 0.37          | 0.85                        | 1.01                                   | 1.06                                   | 1.04 | 1.04 |  |  |  |
| Electricity  | 1.84     | 2.92 | 1.46  | 1.46  | 2.38                        | 1.89 | 2.21 | 0.94  | 1.10          | 2.05                        | 0.98                                   | 1.32                                   | 1.16 | 1.16 |  |  |  |
| Gas Procurement and Ice Production   | 1.01     | 0.72 | 0.51  | 0.36  | 0.87                        | 0.91 | 0.76 | 0.46  | 0.38          | 0.83                        | 1.11                                   | 0.96                                   | 1.04 | 1.04 |  |  |  |
| Water Supply, Waste Management, Waste and Recycling  | 1.14     | 0.75 | 0.57  | 0.38  | 0.95                        | 1.01 | 0.66 | 0.50  | 0.33          | 0.83                        | 1.13                                   | 1.14                                   | 1.13 | 1.13 |  |  |  |

(continued)

Table 3. (continued)

Part 2 of 2

| Economic Sectors   | Aceh (A) |      |       |       |                       |      |      |       |       |                       | Indonesia (I)                     |                                   |  |  |  |  |  |  |  |  |
|--|----------|------|-------|-------|-----------------------|------|------|-------|-------|-----------------------|-----------------------------------|-----------------------------------|--|--|--|--|--|--|--|--|
|  | BLI      | FLI  | W_BLI | W_FLI | Strategic Eco Sectors | BLI  | FLI  | W_BLI | W_FLI | Strategic Eco Sectors | Eco Sector's Opportunity y(O_BLI) | Eco Sector's Opportunity y(O_FLI) | General Eco Sector's Opportunity y(GO) |  |  |  |  |  |  |  |
| Construction   | 1.09     | 1.21 | 0.54  | 0.60  | 1.15                  | 1.13 | 1.02 | 0.56  | 0.51  | 1.07                  | 0.97                              | 1.18                              | 1.07                                   |  |  |  |  |  |  |  |
| Car, Motorcycle and Repair Trade                                     | 0.93     | 1.01 | 0.47  | 0.50  | 0.97                  | 0.88 | 1.02 | 0.44  | 0.51  | 0.95                  | 1.06                              | 0.98                              | 1.02                                   |  |  |  |  |  |  |  |
| Wholesale and Retail Trade, Not Cars and Motorcycles                 | 0.95     | 2.72 | 0.48  | 1.36  | 1.84                  | 0.89 | 1.99 | 0.44  | 1.00  | 1.44                  | 1.08                              | 1.36                              | 1.28                                   |  |  |  |  |  |  |  |
| Rail Transport   | 0.71     | 0.71 | 0.36  | 0.36  | 0.71                  | 1.21 | 0.63 | 0.61  | 0.32  | 0.92                  | 0.59                              | 1.13                              | 0.77                                   |  |  |  |  |  |  |  |
| Land Transport   | 0.96     | 1.53 | 0.48  | 0.76  | 1.25                  | 1.04 | 1.20 | 0.52  | 0.60  | 1.12                  | 0.93                              | 1.27                              | 1.11                                   |  |  |  |  |  |  |  |
| Sea Freight  | 1.06     | 0.78 | 0.53  | 0.39  | 0.92                  | 1.18 | 0.77 | 0.59  | 0.38  | 0.98                  | 0.89                              | 1.02                              | 0.94                                   |  |  |  |  |  |  |  |
| River Lake and Crossing Transportation                               | 0.89     | 0.71 | 0.44  | 0.36  | 0.80                  | 1.11 | 0.67 | 0.55  | 0.34  | 0.89                  | 0.80                              | 1.06                              | 0.90                                   |  |  |  |  |  |  |  |
| Air Freight  | 1.10     | 0.84 | 0.55  | 0.42  | 0.97                  | 1.12 | 0.89 | 0.56  | 0.44  | 1.00                  | 0.98                              | 0.95                              | 0.97                                   |  |  |  |  |  |  |  |
| Warehousing and Supporting Services for Transport, Post and Couriers | 0.86     | 0.81 | 0.43  | 0.40  | 0.84                  | 1.06 | 0.98 | 0.53  | 0.49  | 1.02                  | 0.81                              | 0.83                              | 0.82                                   |  |  |  |  |  |  |  |
| Accommodation Provision  | 1.04     | 0.72 | 0.52  | 0.36  | 0.88                  | 0.96 | 0.71 | 0.48  | 0.35  | 0.84                  | 1.08                              | 1.02                              | 1.06                                   |  |  |  |  |  |  |  |
| Food and Drink Preparation   | 1.18     | 0.84 | 0.59  | 0.42  | 1.01                  | 1.13 | 0.81 | 0.57  | 0.40  | 0.97                  | 1.04                              | 1.04                              | 1.04                                   |  |  |  |  |  |  |  |
| Information and Communication Services                               | 0.88     | 0.99 | 0.44  | 0.49  | 0.93                  | 0.98 | 1.60 | 0.49  | 0.80  | 1.29                  | 0.89                              | 0.62                              | 0.72                                   |  |  |  |  |  |  |  |
| Financial Intermediary Services Other Than Central Bank              | 0.85     | 1.01 | 0.43  | 0.51  | 0.93                  | 0.84 | 1.33 | 0.42  | 0.67  | 1.09                  | 1.02                              | 0.76                              | 0.86                                   |  |  |  |  |  |  |  |
| Insurance and Pension Fund   | 0.90     | 0.72 | 0.45  | 0.36  | 0.81                  | 0.88 | 0.72 | 0.44  | 0.36  | 0.80                  | 1.03                              | 1.00                              | 1.02                                   |  |  |  |  |  |  |  |
| Other Financial Services   | 0.92     | 0.73 | 0.46  | 0.36  | 0.82                  | 0.92 | 0.79 | 0.46  | 0.40  | 0.86                  | 1.00                              | 0.91                              | 0.96                                   |  |  |  |  |  |  |  |
| Financial Support Services   | 0.88     | 0.72 | 0.44  | 0.36  | 0.80                  | 0.89 | 0.86 | 0.45  | 0.43  | 0.88                  | 0.99                              | 0.83                              | 0.91                                   |  |  |  |  |  |  |  |
| Real Estate  | 0.98     | 1.90 | 0.49  | 0.95  | 1.44                  | 0.84 | 0.97 | 0.42  | 0.48  | 0.90                  | 1.16                              | 1.96                              | 1.59                                   |  |  |  |  |  |  |  |
| Company Services   | 0.99     | 1.17 | 0.49  | 0.59  | 1.08                  | 0.98 | 1.64 | 0.49  | 0.82  | 1.31                  | 1.00                              | 0.71                              | 0.82                                   |  |  |  |  |  |  |  |
| Government Administration, Defense and Social Security Mandatory     | 0.99     | 1.05 | 0.50  | 0.53  | 1.02                  | 1.05 | 0.89 | 0.53  | 0.45  | 0.97                  | 0.95                              | 1.18                              | 1.05                                   |  |  |  |  |  |  |  |
| Education Services   | 0.93     | 0.73 | 0.46  | 0.37  | 0.83                  | 0.94 | 0.69 | 0.47  | 0.35  | 0.81                  | 0.99                              | 1.06                              | 1.02                                   |  |  |  |  |  |  |  |
| Health Services and Social Activities                                | 1.07     | 0.82 | 0.54  | 0.41  | 0.95                  | 1.08 | 0.70 | 0.54  | 0.35  | 0.89                  | 1.00                              | 1.17                              | 1.07                                   |  |  |  |  |  |  |  |
| Other Services   | 0.96     | 1.30 | 0.48  | 0.65  | 1.13                  | 0.96 | 0.85 | 0.48  | 0.43  | 0.91                  | 0.99                              | 1.52                              | 1.24                                   |  |  |  |  |  |  |  |

Source: The calculation is based on Input-Output Table 2016 (I-O Table) with 52 economic sectors of Aceh Province and Indonesia. Data are sourced by Central Bureau of Statistics of Aceh Province and Indonesia, 2016.

Notes: BLI and FLI refer to Backward Linkage Index and Forward Linkage Index. W\_BLI and W\_FLI are weighted BLI and FLI. The value of strategic economic sectors is a weighted value given by policy makers for each sector of the economy. This is largely determined by the direction of the development goals of each economic area. In this context, the weight values are given proportionally. While the value of economic opportunity (O\_BLI), (O\_FLI), and (GO) is the ratio value between BLI and FLI values in Aceh province with the national BLI and FLI, Indonesia.

**Table 4.** Economic sectors' opportunity based on backward and forward interregional linkage indices of Aceh Province, North Sumatra, and Indonesia according to 17 economic sectors, 2016

| Region        | Economic Sectors   | Backward Interregional linkage (BIL) |              | Forward Interregional linkage (FIL) |              |
|---------------|--|--------------------------------------|--------------|-------------------------------------|--------------|
|               |  | Economic Sectors' Opportunity        |              | Economic Sectors' Opportunity       |              |
|               |  | IRIC Index                           | RIC A        | IRIC Index                          | RIC A        |
|               |  | 1.00                                 | 0.97         | 1.09                                | 1.11         |
|               | Agriculture, Forestry and Fisheries                              | 0.90                                 | 0.97         | 1.44                                | 1.46         |
|               | Mining and excavation  | 0.95                                 | 0.93         | 0.62                                | 0.62         |
|               | Processing industry  | 1.15                                 | 1.53         | 1.54                                | 1.55         |
|               | Electricity and Gas Supply                                       | 1.12                                 | 1.08         | 1.00                                | 1.00         |
|               | Water Supply, Waste Management, Waste and Recycling              | 0.92                                 | 0.94         | 1.23                                | 1.23         |
|               | Construction   | 0.98                                 | 1.01         | 1.01                                | 1.06         |
|               | Wholesale and Retail Trade: Car and Motorcycle Repair            | 0.98                                 | 1.01         | 0.98                                | 0.98         |
|               | Transportation and Warehousing                                   | 1.01                                 | 1.01         | 0.81                                | 0.82         |
|               | Provision of Accommodation and Food and Drink                    | 1.01                                 | 0.91         | 0.97                                | 0.98         |
|               | Information and Communication                                    | 0.96                                 | 1.01         | 0.89                                | 0.90         |
|               | Financial Services and Insurance                                 | 1.06                                 | 1.01         | 1.12                                | 1.20         |
|               | Real Estate  | 1.12                                 | 1.12         | 1.20                                | 1.20         |
|               | Company Services   | 1.06                                 | 0.99         | 0.93                                | 0.94         |
|               | Government Administration, Defense and Mandatory Social Security | 1.11                                 | 1.00         | 1.13                                | 1.13         |
|               | Education Services   | 1.06                                 | 1.00         | 0.96                                | 0.96         |
|               | Health Services and Social Activities                            | 1.08                                 | 1.01         | 1.03                                | 1.03         |
|               | Other Services   | 1.00                                 | 0.96         | 1.00                                | 1.00         |
|               | Percentage of Number of Economic Sectors' Opportunity            | 70.59                                | 52.94        | 52.94                               | 58.82        |
| <b>Region</b> | <b>Economic Sectors</b>  | <b>IRIC Index</b>                    | <b>RIC A</b> | <b>IRIC Index</b>                   | <b>RIC A</b> |
|               | Agriculture, Forestry and Fisheries                              | 1.06                                 | 0.95         | 0.94                                | 1.20         |
|               | Mining and excavation  | 1.06                                 | 0.94         | 0.52                                | 0.76         |
|               | Processing industry  | 1.12                                 | 0.93         | 0.26                                | 0.49         |
|               | Electricity and Gas Supply                                       | 1.15                                 | 0.97         | 0.73                                | 0.68         |
|               | Water Supply, Waste Management, Waste and Recycling              | 1.18                                 | 0.97         | 0.96                                | 0.98         |
|               | Construction   | 1.09                                 | 0.86         | 0.92                                | 1.00         |
|               | Wholesale and Retail Trade: Car and Motorcycle Repair            | 1.06                                 | 0.93         | 0.70                                | 0.98         |
|               | Transportation and Warehousing                                   | 1.11                                 | 0.79         | 0.65                                | 0.85         |
|               | Provision of Accommodation and Food and Drink                    | 1.10                                 | 0.95         | 0.77                                | 0.88         |
|               | Information and Communication                                    | 1.03                                 | 0.80         | 0.58                                | 0.70         |
|               | Financial Services and Insurance                                 | 1.04                                 | 0.89         | 0.57                                | 0.73         |
|               | Real Estate  | 1.20                                 | 1.03         | 1.00                                | 1.27         |
|               | Company Services   | 1.06                                 | 0.97         | 0.73                                | 0.71         |
|               | Government Administration, Defense and Mandatory Social Security | 1.05                                 | 0.83         | 1.06                                | 1.12         |
|               | Education Services   | 1.05                                 | 0.96         | 0.96                                | 0.97         |
|               | Health Services and Social Activities                            | 1.07                                 | 0.87         | 1.01                                | 1.03         |
|               | Other Services   | 1.05                                 | 0.87         | 0.87                                | 1.01         |
|               | Percentage of Number of Economic Sectors' Opportunity            | 100.00                               | 5.88         | 17.65                               | 41.18        |

(continued)



Table 4. (continued)

| Region   |            | Part 2 of 2 |            |       |
|--|------------|-------------|------------|-------|
| Economic Sectors   | IRIC Index | RICNS       | IRIC Index | RICNS |
| North Sumatera (NS)-Aceh (A)                                     | 1.00       | 1.03        | 0.92       | 0.90  |
| Agriculture, Forestry and Fisheries                              | 1.12       | 1.03        | 0.69       | 0.68  |
| Mining and excavation  | 1.05       | 1.08        | 1.97       | 1.62  |
| Processing industry  | 0.87       | 0.65        | 0.65       | 0.65  |
| Electricity and Gas Supply                                       | 1.09       | 0.92        | 1.00       | 1.00  |
| Water Supply, Waste Management, Waste and Recycling              | 1.09       | 1.06        | 0.82       | 0.82  |
| Construction   | 0.96       | 0.98        | 0.96       | 0.96  |
| Retail Trade, Car and Motorcycle Repair                          | 0.99       | 1.08        | 1.20       | 1.17  |
| Transportation and Warehousing                                   | 1.04       | 0.99        | 1.23       | 1.22  |
| Provision of Accommodation and Food and Drink                    | 1.10       | 1.10        | 1.03       | 1.02  |
| Information and Communication                                    | 0.95       | 0.99        | 1.13       | 1.11  |
| Financial Services and Insurance                                 | 0.89       | 0.89        | 0.83       | 0.83  |
| Real Estate  | 0.94       | 1.01        | 1.07       | 1.06  |
| Company Services   | 0.90       | 1.00        | 0.88       | 0.89  |
| Government Administration, Defense and Mandatory Social Security | 0.94       | 1.00        | 0.94       | 0.94  |
| Education Services   | 0.93       | 0.99        | 0.97       | 0.94  |
| Health Services and Social Activities                            | 1.00       | 1.05        | 1.00       | 1.00  |
| Other Services   | 41.18      | 58.82       | 52.94      | 52.94 |
| Percentage of Number of Economic Sectors' Opportunity            |            |             |            |       |
| North Sumatera (NS)-Indonesia (I)                                | 1.06       | 0.98        | 0.86       | 0.82  |
| Agriculture, Forestry and Fisheries                              | 1.17       | 1.01        | 0.52       | 0.79  |
| Mining and excavation  | 1.05       | 0.56        | 0.48       | 0.75  |
| Processing industry  | 1.06       | 0.90        | 0.96       | 0.98  |
| Electricity and Gas Supply                                       | 1.18       | 0.92        | 0.75       | 0.82  |
| Water Supply, Waste Management, Waste and Recycling              | 1.08       | 0.92        | 0.70       | 0.93  |
| Construction   | 1.06       | 0.85        | 0.79       | 1.00  |
| Wholesale and Retail Trade; Car and Motorcycle Repair            | 1.09       | 0.94        | 0.94       | 1.08  |
| Transportation and Warehousing                                   | 1.08       | 0.88        | 0.60       | 0.72  |
| Provision of Accommodation and Food and Drink                    | 0.98       | 0.83        | 0.64       | 0.81  |
| Information and Communication                                    | 0.98       | 0.85        | 0.64       | 0.81  |
| Financial Services and Insurance                                 | 1.07       | 0.90        | 0.51       | 0.76  |
| Real Estate  | 0.94       | 0.83        | 0.94       | 0.94  |
| Company Services   | 0.99       | 0.87        | 1.00       | 1.01  |
| Government Administration, Defense and Mandatory Social Security | 0.99       | 0.86        | 0.99       | 1.00  |
| Education Services   | 1.05       | 0.91        | 0.87       | 1.01  |
| Health Services and Social Activities                            | 76.47      | 5.88        | 5.88       | 1.00  |
| Other Services   | 41.18      | 58.82       | 52.94      | 52.94 |
| Percentage of Number of Economic Sectors' Opportunity            |            |             |            |       |

Source: The calculation is based on the Interregional Input-Output Table 2016 (IRIO Table) with 17 economic sectors of 34 provinces in Indonesia. Data are sourced by Central Bureau of Statistics of Indonesia, 2016.

Notes: IRIC refer to Interregional Input Coefficient based on Backward Linkage Index and Forward Linkage. RIC and TC are Regional Input Coefficient and Trade Coefficient based on Backward Linkage and Forward Linkage Indexes. The value of strategic economic sectors is the value of the weight given by policy makers to each sector by the economy. This is largely determined by the direction of the development goals of each economic area. In this context, the weight values are given disproportionately, where RIC's weight is greater than the other, TC. While the value of economic sectors' opportunity is the ratio value between the IRIC index value and the RIC of one economic area with other economic regions based on Backward Interregional Linkage (BIL) and Forward Interregional Linkage (FIL) both inter-regionally and nationally (Indonesia).

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# A Comparative Study of Traditional Bank A and Digital Bank B from an Organizational Innovation Perspective



Easwaramoorthy Rangaswamy , Naresh Nadipilli, and Nishad Nawaz 

**Abstract** The digital insurgency is troublemaking the association between banks and their customers and new features constantly seem to upgrade client experience. A digital transformation procedure comprises of innovative technology application developments, just as company aspects, for example, C-suite executives uphold, digital transformation strategy, product innovations, HR systems and organizational changes. The practical implications of this research study show digital bank customers are more satisfied than traditional bank customers during COVID-19, digital banking services are cheaper than traditional banking services, Product innovation plays major role in digital transformation and also note that most of the customers are preferred to use digital bank services rather than internet banking, POS terminals, Credit Cards, Debit Cards & ATM Machines.

**Keywords** Traditional banking · Digital banking · FinTech · Digital · Transformation · Organizational innovation · Customer satisfaction

## 1 Introduction

During the past recent decade, there has been a rise in the number of organizations that have been presenting the idea of digital transformation. Digital transformation involves not just the utilization of new innovative technologies (for example Data Analytics, machine learning, artificial intelligence & Internet of Things), yet in addition the progressions of the key business components, including strategy, operating

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E. Rangaswamy

Amity Global Institute, 101 Penang Road, Singapore 238466, Singapore  
e-mail: [erangaswamy@singapore.amity.edu](mailto:erangaswamy@singapore.amity.edu)

N. Nadipilli

Business Analyst, Credit Agricole Corporate Investment Bank, Capital Tower, Singapore  
e-mail: [resh.nadipilli@ca-cib.com](mailto:resh.nadipilli@ca-cib.com)

N. Nawaz (✉)

Department of Business Management, College of Business Administration, Kingdom University, Riffa, Kingdom of Bahrain  
e-mail: [n.nawaz@ku.edu.bh](mailto:n.nawaz@ku.edu.bh)

model, plan of action, business procedures, company structures and company culture. If we are able to handle all these functions effectively, it can prompt business process enhancement (optimization) and it will produce better results for the organization. It additionally triggers industry disturbance by the presentation of new plans of action and the advancement of digitized products and services (Kiron et al. 2016).

We are currently living in a period of digitisation, populated by the digital natives of Generations anyway according to the exploration shows just around one of every eight worldwide banks (12%) have all the earmarks of being completely dedicated to digital transformation, roughly four out of 10 banks (38%) are in the transformation stage yet have not conveyed a strong and convincing digital change strategy to the market and The excess half of banks have not made huge progressions in digital transformation, to improve their significance, they should adopt and fully committed to digital transformation strategy. As per this data only just couple of banks are contributing and investing more money towards turning out to be first digital banks (Accenture 2019).

Starting late, the economic business has seen rapidly creating allocation of financial advancement, or fintech. Banks and Venture Capitalist uphold have made substantial interests in fintech, reflecting their cravings for critical change in the finance industry. The fast development of progress in fintech has reviewing the conceivable impact on banks and their strategies testing. While some market spectators measure that an enormous piece of bank's revenues, especially in retail banking, is in hazard all through the accompanying 10 years (McKinseyCo 2015).

### ***1.1 Situational Analysis***

Singapore inhabitants are progressively receiving digital payments because of the COVID-19 pandemic, as per a Global Data report. The report gauges absolute card payments will progress by 2.5% to \$85.3 billion while money withdrawals at ATMs will decrease by 3.4% in 2020. Singapore is a profoundly evolved contactless card markets, with most shoppers approaching contactless card. The COVID-19 episode has prodded shippers to embrace electronic payments. Cash payments are set decrease in the present moment in Singapore while card payments, especially contactless payments, are required to fill in not so distant future (Data 2020).

## **2 Review of Literature**

Review of Literature is a synopsis of connected published evidence specifically point and attention. Review of Literature is normally coordinated with a depiction, precis, and basic assessment of individual source, and furthermore recognizes the gaps that require further exploration. The research issues mentioned under research question

will be further described, analysed with past research data and also identifies the gaps for further research purpose.

## ***2.1 Challenges to Traditional Banking***

The term 'Traditional Banking' is referred to as the banking system that has been followed since past. The Traditional banking system is the banking system where the financial institution provides the financial services to the customer by accepting deposits from the public and creates demand deposit. The traditional banking is none other than banking facilities that are provided by the banking sectors to their customers. The traditional banking is an institution that is devoted to the administration of the deposit that is made by its customers. This banking facility or service is running from a long period and is still continuing, the banking institution has different branches where the customers can visit in order to deposit or withdraw their money. The system of customers visiting the bank's branch and deposit their money and withdraw their money and to avail various other banking system has been a long-followed process and it is still into practise in recent times but many people prefer to do it over mobile.

It should be noticed that the conventional financial framework is right now confronting a purge as they battle to fulfil their clients. Preferably, this purge results from the expanding number of customers that are looking for digital-banks. Cocking (2018), state that claims from client puts it out that they acquire monetary control with regards to digital and neo-banks. Individuals today can possess their monetary information and also, they can straightforwardly transfer the data to other monetary organizations. As (Christensen 2019; Derwin 2020), clarifies, neo-banks are 100% autonomous and furthermore, they have no physical branches or service centres. At the end of the day, neo-banking implies no work area banking, it is carefully through mobile. Eminently, the digital retail banking transformation is here and numerous other financial organizations have indicated their interest to proceed with digital transformation. This desire for change in the financial framework has brought about a touchy, just as worldwide development in the rise of more clients inclined towards neo-banks.

As per (Derwin 2020), these sorts of banks offer fully-digital services at amazingly low expenses. This perspective has pulled in numerous individuals from the millennial age since utilities can be paid at their solace. With such a circumstance within reach, the traditional banks are currently dominated by the neo-banks on numerous fronts. Then again, research from Carr (2003), demonstrates that customers have been confronting a significant issue in regards to utility payments because of the inner cost structures inside the conventional banking framework. Nonetheless, the development of neo-banks has essentially diminished the majority of the operational costs that are forced on utilities. (Groenfeldt 2019) suggest that the conventional banks should significantly increase their work to keep up their income contrasted with neo-banks. Additionally, insights depict that the costs forced on utilities in

conventional banks range from \$150 to \$250, though the sum for advanced or neo-banks is just \$45 (Edmead 2016). Aside from the issue of costs, neo-banks offer consistent client experience, which is the main attraction to their target group (the working and considering recent college grads). Customers are provided with individual financial management application with actionable and easy-to-use features that assist when saving money or traveling for leisure activities.

## ***2.2 Evolution of Fintech and Latest Trends***

Lately the business scene in the financial industry has changed significantly. After the monetary emergency of 2007–2008 the economic industry specialists have heightened guideline of the financial area, presenting new or fortifying present norms. Moreover, advancements in technology, innovation and Finance Technologies (FinTech) (Report 2015) have expanded the need to search for additional inventive resolutions in banking (Arner et al. 2015), and replaces conventional financial frameworks with new innovation-based cycles (Carr 2003; Hochstein 2015).

As the FinTech area fringes are hard to characterize, accessible information on FinTech is to some degree disputable, contingent upon organizations remembered for the statement. Accenture study characterizes FinTech organizations as organizations that “provide advancements for banking and corporate account, investment business sectors, financial information investigation, payments and individual finance management” (Skan et al. 2014). In this way, the advancement of FinTech and its effect on the eventual fate of banking are very effective now a days (Dapp et al. 2014).

## ***2.3 Organizational Innovation***

Innovation alludes to the execution of approximately fresh that is useful to the trend-setter. It is the selection of fresh ideas or conduct (Wu and Lin 2011; West and Anderson 1996) stated innovation as “the presentation and implementation, inside a gathering, company, or more extensive culture, procedures, products, or systems fresh to the pertinent unit of reception and expected to profit the gathering, distinct, or more extensive culture.” (Rogers 2003) depicted innovation as “a thought, exercise, or item that is seen as new by a specific or other unit of acceptance.” According to Baregheh et al. (2009), innovation is “the multi-stage measure whereby companies change thoughts into new/enhanced products, services or methods, to progress, contend and separate themselves effectively in their domain.” Innovation identifies with new products and 72 JED 21,1 services, creation techniques and methodology and innovative technologies, just as regulatory variations (Fay et al. 2015).

This research embraces the exhaustive and broadly perceived meaning of innovation presented by the (Data 2005) “A innovation is the developing of brand new

or essentially enhanced invention (good or service), or method, another promoting technique, or another organizational strategy in business best practices, work environment firm or outside relations.” The explanation involves four sorts of innovation: product development, process advancement, organizational innovation and promoting innovation—in which organizational innovation is stated as “the execution of brand-new corporation method in the organizations strategic best experiments, working environment organization or outside connections” (Data 2005).

A Forrester Consulting exploration examination authorized by Accenture Collaborative originate that the vital drivers of high-tech change are advantage to the organization, consumer loyalty, and to increase rapidity of the market. To additionally explain, the examination got some evidence about their wide essential requirements during the following year. The core verdict was “enhancing the customer journey,” trailed by emerging profits, improving variation in the products, and decreasing costs (Edmead 2016).

## ***2.4 Strategic Ways to Upgrade with Product Innovations***

New Product advancement is one of the key exercises for some organizations to accomplish upper hand (Koufteros et al. 2005). Innovativeness and development are firmly related, yet they are not something very similar. A few organizations can create a ton of thoughts yet can’t place the thoughts without hesitation Creativity is characterized as far as inventiveness while development comprises of changing a ground-breaking thought into another brand-new product, method or service, which prompts picking up benefit with respect to business endeavours (Satsomboon and Pruetipibultham 2014). Advancement can suggest high beginning and non-stop investments, hazards, and vulnerability, the advantages, for example, distinction from rivalry, client allegiance, cost expenses for inventive products, and passage obstructions for potential imitators for the most part appear to exceed the costs (Rosenbusch et al. 2011). In digitally developing organizations, almost 90% of strategies concentrate around enhancing procedures in developing brand new product by using advanced technology and innovation (Kane et al. 2015).

## ***2.5 Gap Analysis***

Gap analysis alludes to an investigation action among guidelines and the real distribution dissimilarities (Upadhyaya 2013). This gap examination would comprise inside and outer investigation, where outside is about how it is verbal with the client, while interior is about how the banks developed the products or service. It is to help in shutting the gaps with the end goal for business to achieve the maximum elevated

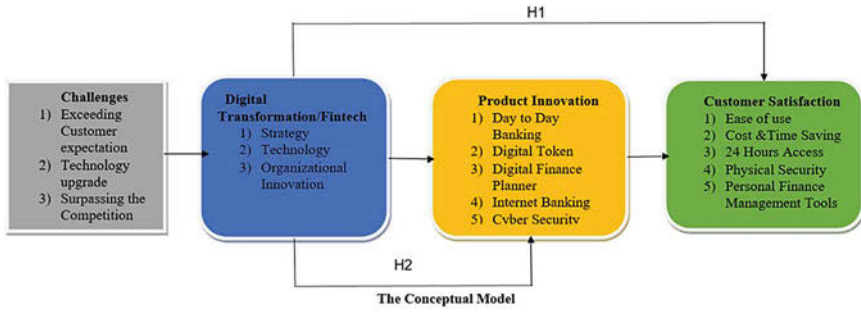


Fig. 1 Conceptual model

potentials. This is a comparative study method to contrast and analyse the Traditional Bank A and Digital Bank B, the findings showed that digital transformation, organizational and Product innovation plays major role in customer satisfaction.

### 2.6 Conceptual Framework Development

Figure 1 shows the conceptual model, it shows what are the challenges faced by traditional banks and these are the main trigger points for digital transformation of the banks. The key drivers which will accelerate the digital transformation are Strategy, Technology and Organizational Innovation (King 2018). The digital transformation in banks can be achieved by Product innovation and it influences the customer satisfaction in banks. The conceptual framework in Fig. 1 also identifies the independent variables like Day to Day Banking, Digital tokens, Digital Finance planner, Internet Banking and Cyber Security under Product innovation and dependent variables like Ease of Access, cost saving (lower interest rates & less transaction fees), time saving (no need to go Bank or ATM), 24 h access (can make payments any time), Physical Security (no need to go out with cash), Personal finance management tools to know your past spending and future expenses are dependent variables for customer satisfaction.

## 3 Methodology

### 3.1 Research Questions

Based on the above problem statement this research study concentrates on the digital transformation of banks and Fintech evolution, in this context there is a need to discover challenges faced by traditional banks and also find the importance of Product



innovation which is directly pertains to customer satisfaction and generating more value to the organization so above all raises the following research questions,

- What are the various strategic ways for traditional banks to upgrade with product innovations to generate more value?

### ***3.2 Aim and Objectives***

With the above research questions to be addressed in the current research, overall aim of the project is to find out the challenges faced by traditional banks, understand how technology disruption changed the banking operations, analyse how technology became a key driver for digital transformation of banks, conduct a comparative study of product innovations adopted by Bank A and Bank B from customer point of view and provide some recommendations to all the traditional banks on how we can generate more value to banks by adopting product innovation in the banks.

- To evaluate the Product innovations adopted by Traditional Bank A and Digital Bank B.
- To suggest traditional Banks on various strategic ways to upgrade with product innovations to generate more value.

### ***3.3 Hypotheses***

Null Hypothesis 1: There is no significant relation between customer satisfaction and digital transformation of the bank.

Alternate Hypothesis 1: There is a significant relation between customer satisfaction and digital transformation of the bank.

Null Hypothesis 2: There is no significant impact on day to day banking operations due to fintech transformation.

Alternate Hypothesis 2: There is a significant relation between day to day banking operations and fintech transformation.

### ***3.4 Research Design***

As per research philosophy realism was opted to work in this research, realism was defined by Saunders et al. (2009) that it was a philosophy that is constructed on scientific approach to develop the knowledge. This study is expected to contribute the areas of traditional banks, digital banking, organization innovation, customer satisfaction and suggestions. In the exploration approach, deductive methodology was picked to reasonable way at the examination as it was building on the sensible perspective and to reach inference from the hypothesis (Saunders et al. 2009). Deductive

approach initiates from the current speculation and prototype, which proposals were made and besides thusly attempted through observational examinations. Moreover, the investigation study would be a quantitative assessment with deductive technique. So as to build up the investigation method, study methodology was assumed for this investigation. It could consider diverse size of publics and from this general public to find the user experiences of Bank A and Bank B clients. Research decision of this investigation is mono strategy as a solitary subjective information assortment method and related examination techniques was used. In any case, (Kothari et al. 2009; Maxwell 2012) expressed that mono strategy is to be a lot simpler to design and execute.

### ***3.5 Sample Selection and Size***

Primary data was collected using convenience sampling, with the sample size of 60 users being selected to be the respondents of the survey. This research was conducted in Singapore with descriptive research design and questionnaires were used as the research instrument. The respondents were contacted online method but they will still remain as anonymous accessing the survey link which doesn't capture their name and email ID. The respondents are customers who have used the service of Traditional or Digital Bank. They are general public and don't have any specific affiliations with the bank except as customer of their products hence the above research is only using and collecting information that is available in the public domain (Wood and Ross-Kerr 2010). This research was carried out using non-probability sampling in which that everybody had the equivalent opportunity to be chosen and depended on their accessibility and helpful chance to chip away at the survey (Bryman 2016).

## **4 Findings**

### ***4.1 Research Validity and Reliability***

Content validity was alluded to the subjective arrangement among the experts that a scale legitimately appeared to precisely reflect what it was supposed to quantify. Construct Validity is to guarantee that the estimation was really estimating what it was expected to quantify during the statistical investigation. Content validity of the survey was finished by getting the input from 5 Banking Consultants, who are subject matter specialists in the financial domain. Construct validity was done by referring a statistician, to confirm that suitable variable sorts like nominal, ordinal and categorical along with intervals are preferred. Reliability analysis was determined using Cronbach's alpha coefficient, A score of at least 0.73 or above is measured as reliable (Bryman and Beardsworth 2006; Becker et al. 2012) The reliability score for

**Table 1** Results of reliability analysis

| Questions  | Cronbach's Alpha | No of Items |
|--|------------------|-------------|
| Accessibility and Customer Satisfaction During COVID-19              | 0.750            | 9           |
| Attitudes and Perceptions towards Digital Banking                    | 0.912            | 7           |
| Innovative User Interface/Banking Products                           | 0.924            | 5           |
| Benefits of Digital Banking Services Compared to Traditional Banking | 0.828            | 6           |
| Reliability Score for all items together                             | 0.946            | 27          |

all the items in the research instrument was 0.946. Additional, Reliability analysis was also shown for each segment of research instrument to comprehend the reliability of respectively segment.

As per the above results in the Table 1, with all the scores being greater than 0.73, the research instrument is measured reliable.

## 4.2 Demographic Profile of the Respondents

Based on the data collected, Table 2 indicates that there were more male respondent's (65%) participated when compared with female respondent's (35%). This implied that more male use banking facilities than female. Coming to the age, most of the respondents (75%) are falls in 31–45 range, 18.3 falls in 18–30 range and remaining respondents (6.7%) are falls in 46–55 range. This indicates that younger generation are more inclined towards technology rather than conventional services. On levels of education, majority of the respondents as presented by 56.7% were degree holders, 41.7% were master's degree holders. Only 1.7% had a diploma. This indicates that all the educated were adopting to new technologies and they are very familiar with digital banking products and their benefits so more educated people will not use traditional banking. Coming to the occupation, majority of the population (83.3%) are employees of Private limited company. This indicates that most of the private employee uses digital banking services rather than traditional banking services. For example, IT professionals they are very well equipped with technology so they always prefer to use digital banking services. Out of 60 sample size, exactly 50% are traditional bank customers and 50% are digital bank customers.

**Table 2** Gender, Age, academic level and occupation

| Gender              | No of Respondents | Percentage |
|---------------------|-------------------|------------|
| Male                | 39                | 65         |
| Female              | 21                | 35         |
| Total               | 60                | 100        |
| Age                 | No of Respondents | Percentage |
| 18–30 Years Old     | 45                | 75         |
| 31–45 Years Old     | 11                | 18.3       |
| 46–55 Years Old     | 4                 | 6.7        |
| 56 Years Old+       | 0                 | 0          |
| Total               | 60                | 100        |
| Academic Level      | No of Respondents | Percentage |
| Secondary and Below | 0                 | 0          |
| Diploma             | 1                 | 1.7        |
| Bachelor’s Degree   | 34                | 56.7       |
| Master’s Degree     | 25                | 41.7%      |
| Doctorate Degree    | 0                 | 0          |
| Total               | 60                | 100        |
| Occupation          | No of Respondents | Percentage |
| Government          | 3                 | 5%         |
| Private Limited     | 50                | 83.3%      |
| Self-Employed       | 3                 | 5%         |
| Not Employed        | 2                 | 3.3%       |
| Student             | 2                 | 3.3%       |
| Total               | 60                | 100        |

### 4.3 Accessibility and Customer Satisfaction During COVID-19

Most of the customers Fig. 2 Indicates that 88.3% respondents didn’t face any difficulty in opening new account or credit card or loan during COVID-19. Only 11.7% of the respondents were faced difficulty in opening new account or credit card or loan. From this finding we can say that still some banks didn’t fully digitalize the account opening/credit card applying/Loan processing.

Table 3 indicates that most of the respondents were rated high for Mobile Banking device compared to other financial devices like internet, POS terminal, ATM Machine, Credit Card & Debit Card, due to this it got the first rank. This imply that customers are more interested towards cashless transactions (digital banking) rather than Traditional banking financial devices (Fig. 3).

Figure 4 Indicates that 63.3% respondents are satisfied with banking service during COVID-19, only 36.7% respondents are not satisfied with the banking services.

7. Do you experienced difficulty in opening a new account or credit card or loan during COVID-19?

60 responses

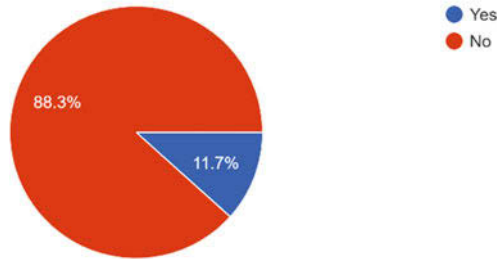


Fig. 2 Accessibility and customer satisfaction during COVID-19

Table 3 Ranking of different financial devices

| S. No | Attributes     | Customers Assigning Scores |   |    |    |    | Mean | Rank |
|-------|----------------|----------------------------|---|----|----|----|------|------|
|       |                | 1                          | 2 | 3  | 4  | 5  |      |      |
| 1     | Mobile Banking | 2                          | 0 | 4  | 14 | 40 | 4.50 | 1    |
| 2     | Internet       | 1                          | 1 | 6  | 14 | 38 | 4.45 | 2    |
| 3     | POS            | 5                          | 2 | 16 | 17 | 20 | 3.75 | 6    |
| 4     | ATM Machine    | 4                          | 6 | 7  | 14 | 29 | 3.97 | 5    |
| 5     | Credit Card    | 2                          | 4 | 5  | 11 | 38 | 4.32 | 3    |
| 6     | Debit Card     | 5                          | 0 | 9  | 15 | 31 | 4.12 | 4    |

Note: Ranks in the last column is based on the values of mean scores

10. How would you rate your ability to use the following devices? On a scale of 1 to 5, 1 being the lowest and 5 being the highest.

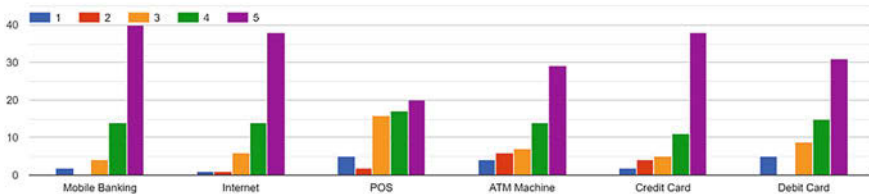


Fig. 3 Ranking of different financial devices

This imply that digital banking customers are more satisfied than traditional bank customers due to product innovation adoption in their banking services.

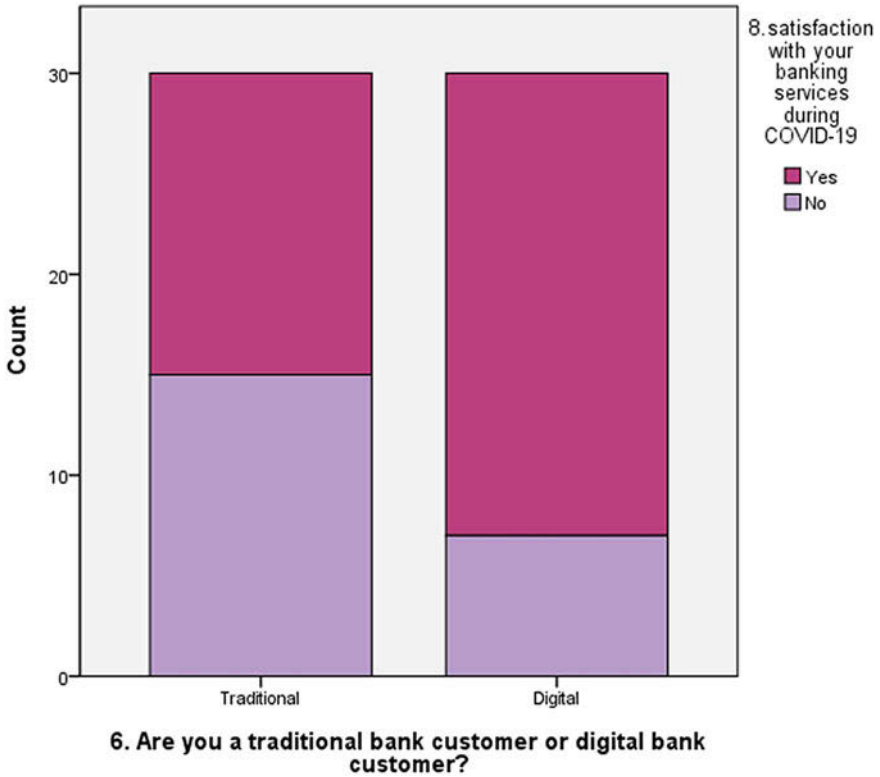
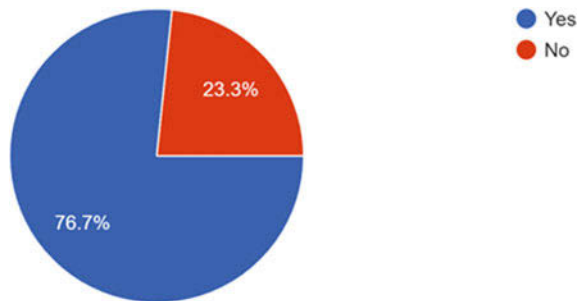


Fig. 4 Satisfaction of respondents with bank services during COVID-19

Fig. 5 Respondents' attitudes and perceptions towards Digital Banking



#### 4.4 Attitudes and Perceptions Towards Digital Banking

Figure 5 shows, 76.7% respondents confirmed that digital banking service are cheaper than traditional banking services so most of the banking customers are preferred to

**Table 4** Ranking of customer perception digital banking

| S. No | Attributes   | Customers Assigning Scores |   |    |    |    | Mean | Rank |
|-------|--|----------------------------|---|----|----|----|------|------|
|       |  | 1                          | 2 | 3  | 4  | 5  |      |      |
| 1     | Overall Trust  | 1                          | 0 | 16 | 23 | 20 | 4.02 | 2    |
| 2     | Trust in banks   | 3                          | 1 | 13 | 21 | 22 | 3.97 | 3    |
| 3     | Trust in the technology of mobile banking                | 1                          | 4 | 14 | 22 | 19 | 3.90 | 4    |
| 4     | Trust in third party payment network (Visa & Mastercard) | 1                          | 6 | 13 | 24 | 16 | 3.80 | 5    |
| 5     | Security from fraud                                      | 2                          | 4 | 17 | 23 | 14 | 3.72 | 6    |
| 6     | Ease of use  | 1                          | 0 | 7  | 24 | 28 | 4.30 | 1    |

Note: Ranks in the last column is based on the values of mean scores

use digital services rather than traditional banking services due to no extra cost required to avail the digital banking services.

Table 4 indicates that most of the respondents were chosen Ease of use and also rated high due to this it got the first rank compared to other attributes like, Trust in banks, Overall Trust, Trust in third party payment network (Visa & Mastercard), Trust in the technology of mobile banking & Security from fraud. This imply that customers are more interested towards comfort in accessing the digital banking services rather than Traditional banking services.

#### ***4.5 Innovative User Interface/Banking Products***

Table 5 indicates that most of the respondents were rated high for “It is easy to make a payment, transfer money and balance enquiry” compared to other digital menu services due to this it got the first rank. This imply that customers main reason to use digital banking is because of its availability (24 h), they can make transactions anytime and no need to go to ATM or Bank physically which saves lot of time in their daily activity.

#### ***4.6 Benefits of Digital Banking Services Compared to Traditional Banking***

Table 6 indicates that most of the respondents were rated high for “Time saving (no need to go to bank or ATM)” compared to other digital banking benefits due to this it got the first rank. This infer that customers don’t want to waste their quality time in standing in the long queues at ATM Machine and Banks which saves lot of their

**Table 5** Ranking of different digital banking menu services

| S. No | Attributes  | Customers Assigning Scores |   |    |    |    | Mean | Rank |
|-------|---|----------------------------|---|----|----|----|------|------|
|       |   | 1                          | 2 | 3  | 4  | 5  |      |      |
| 1     | It is very easy to navigate and understand about my mobile banking menu                 | 1                          | 1 | 13 | 20 | 25 | 4.12 | 2    |
| 2     | It is easy to make a payment, transfer money and balance enquiry                        | 1                          | 1 | 7  | 17 | 34 | 4.37 | 1    |
| 3     | Facility of digital token for easy and secure access                                    | 4                          | 1 | 7  | 22 | 26 | 4.08 | 3    |
| 4     | Dedicated option for Credit/Debit Card blocking in case of any emergency                | 1                          | 2 | 13 | 22 | 22 | 4.03 | 4    |
| 5     | Past expenses and upcoming spending's can be shown in personal finance management tools | 1                          | 2 | 13 | 23 | 21 | 4.02 | 5    |

Note: Ranks in the last column is based on the values of mean scores

**Table 6** Ranking of different benefits of digital banking services

| S. No | Attributes  | Customers Assigning Scores |   |    |    |    | Mean | Rank |
|-------|---|----------------------------|---|----|----|----|------|------|
|       |   | 1                          | 2 | 3  | 4  | 5  |      |      |
| 1     | Cost saving (Lower rates, transaction fees)   | 3                          | 4 | 19 | 19 | 15 | 3.65 | 5    |
| 2     | Time saving (There is no necessity to go to bank or ATM)  | 1                          | 0 | 4  | 13 | 42 | 4.58 | 1    |
| 3     | 24 h Services (The transaction can be made any time)  | 1                          | 2 | 4  | 14 | 39 | 4.47 | 2    |
| 4     | Physical security (There is no requirement to go out with cash)   | 1                          | 0 | 14 | 18 | 27 | 4.17 | 4    |
| 5     | Very rarely visit my branch for services, thanks to digital banking, POS terminals and internet-banking | 2                          | 2 | 8  | 15 | 33 | 4.25 | 3    |

Note: Ranks in the last column is based on the values of mean scores



**Table 7** Results of bank digital transformation and customer’s satisfaction.

| Tests                              | Value              | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|--------------------|----|-----------------------|----------------------|----------------------|
| Pearson Chi-Square                 | 4.593 <sup>a</sup> | 1  | 0.032                 |                      |                      |
| Continuity Correction <sup>b</sup> | 3.517              | 1  | 0.061                 |                      |                      |
| Likelihood Ratio                   | 4.674              | 1  | 0.031                 |                      |                      |
| Fisher’s Exact Test                |                    |    |                       | 0.060                | 0.030                |
| Linear-by-Linear Association       | 4.517              | 1  | 0.034                 |                      |                      |
| N of Valid Cases                   | 60                 |    |                       |                      |                      |

<sup>a</sup> Results of bank digital transformation and customer’s satisfaction

time. Apart from this they also no need to spend any extra cost for digital banking services whereas for accessing traditional banking services, customers need to spend extra money to reach physical Bank Branch locations.

**Hypothesis Testing**

The Digital Transformation of the bank is measured by Product innovation so the study was conducted based on customer satisfaction to prove the null and the alternative hypotheses.

H0:  $\mu_1 = \mu_2$   $\mu_1 - \mu_2 = 0$ : Digital Transformation of Bank does not have significant effect on customer satisfaction.

H1:  $\mu_1 \neq \mu_2$   $\mu_1 - \mu_2 \neq 0$ : Customer Satisfaction has significant impact on digital transformation of the bank.

Table 7 indicates the chi square test performed that shows a significant relationship between digital transformation of the bank and customer’s satisfaction,  $\chi^2(1, N = 60) = 4.593$ , The findings indicate that the  $P < 0.05$  thus the null hypotheses was rejected and the alternative hypotheses was considered which stated that Product innovation has an influence on customer satisfaction, which in turn says Digital Transformation of the bank depends upon Product Innovation.

H0:  $\mu_1 = \mu_2$   $\mu_1 - \mu_2 = 0$ : Fintech Transformation does not have significant effect on day to day banking.

H2:  $\mu_1 \neq \mu_2$   $\mu_1 - \mu_2 \neq 0$ : Day to day banking has significant impact on the Fintech Transformation.

Table 8 indicates the chi square test performed that shows a significant relationship between Fintech Transformation and Day to Day banking operation,  $\chi^2(1, N = 60) = 17.385$ , The findings indicate that the  $P < 0.05$  thus the null hypotheses was rejected and the alternative hypotheses was considered which stated that Fintech Transformation has an influence day to day banking operations such as mobile banking, internet banking, POS terminal, Credit Card/Debit Card and ATM.

**Table 8** Fintech transformation and day to day banking operation.

| Tests                        | Value               | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square           | 17.385 <sup>a</sup> | 4  | 0.002                 |
| Likelihood Ratio             | 19.367              | 4  | 0.001                 |
| Linear-by-Linear Association | 6.856               | 1  | 0.009                 |
| N of Valid Cases             | 60                  |    |                       |

As per the findings from data collection and hypothesis testing, it is proved that digital customers are more satisfied when compared with traditional bank customers during COVID-19 and also digital transformation is directly correlates to customer satisfaction.

## 5 Discussion

Based on the data analysis it was found that the customers are more satisfied with digital banking services and the changing tendencies for customers, who are requesting better approaches to utilize financial services, and the competitive scene onto which the enormous technology and the FinTech organizations have blasted, are constraining the banks to face digitalisation as an issue of persistence, so in order to meet the competition with in the financial services, all banks should adopt the strategy of digital transformation. Based on this research we can conclude that the principle three key drivers for digitalisation of a bank are improvement of new inventive products to accomplish consumer loyalty, while the subsequent methods adopting to use upcoming technologies available in the market and the last requires innovation across the organization that will accelerate the digital transformation. Those banks which are already following the above process, they are present in advanced position now and ready to satisfy all the new demands of the customers and they are already in competition with advanced digital financial service organizations. The study was embedded general suggestion as follows,

- **Digital Banking Products** Artificial intelligence (AI) helped deals of banking products, for example, stores, credits, and home loans are led through direct channels, including social media. That is in accordance with moving shopper inclinations and conduct patterns in online business, particularly coordinated at Generation Y and techsavvy clients.
- **Digital Roboadvisory** AI-based digital financial organizer oversees month to month pay, repeating payments, reserve funds and speculations, expanding connection between the advanced bank and clients. Legitimate continuation of the hover of trust between the advanced bank and clients, where clients depend on the Roboadvisory services to improve speculation portfolios dependent on individual objectives and inclinations, routinely change them and record steady

outcomes and appropriately dispense assets for each period of the client's journey towards everything computerized.

- **Internet of Things** Mobile or Fitbit can be used to track our fitness and the same device can be used as digital wallet to pay bills while purchasing any product or service.
- **Blockchain** Blockchain enabled lending is a technology which can be used to speed up the loan processing when compared with legacy technologies. It will automatically verify all the KYC/Financial documents in real time and process the loans very quickly.
- **Cloud Architecture** Technology made some amazing progress from data centres to cloud computing technologies like Amazon Web Service and Microsoft Azure. Now days banking regulators gave permission to banks to maintain the data in cloud which will save lot of operational cost and that is directly leads to additional income generations for banks.

Digital transformation is about something beyond giving on the web and mobile usefulness. Conventional financial suppliers need to join advanced rapidity and accommodation with manual influences that are equally smart and kind at vital instants in the client satisfaction.

## 6 Conclusion and Future Research

Similar to any other research, there are limitations for this study as well. The major limitations of this study are time and financial constraints. Considering the current pandemic situation, confined time and lack of money were the significant restrictions in visiting and conducting face to face interviews or to direct telephonic interviews. Hence, it was chosen to plan and email a questionnaire to selected people to finish the survey. The research scope is very limited and comparative analysis is not based on the financial performance of the two banks and also noted that this research is only concentrates on the Singapore bank customers.

This study should be simulated in all the traditional banks and also can stretch out to different countries as well, for instance developing country like India. India is one of the up-coming country where mobile payments and digital banking are valuable because of the enormous populace living in rural areas. Further study is expected to comprehend whether there are different components that influence bank's client experience and financial performance in those unique circumstances. Stretching out the study to explicit banks and bank employee's perceptions also can be taken and results can be compared with those from customer's insights. Covering all these extra lines of research will assist with growing more vigorous digital bank transformation theory in near future.

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# Technopreneur and Digital Economy as a Driving Force for the Economic Development in Palestine



Ghassan Shahin  and Mervat Sharabati-Shahin

**Abstract** This paper addresses the main issues of Technopreneur, knowledge and digital economy and their possible role in economic development in Palestine. Human capital is a main pillar for knowledge economy, in addition to other pillars like appropriate infrastructure and policies. In general, Palestine has limited natural resources. However, it has high percentage of educated individuals with university and post-graduate degrees especially in technology-related studies. This forms a good base for proper human capital for future knowledge economy. Several initiatives and efforts have been carried out to promote entrepreneurship and technopreneurship in Palestine as a mean to contribute to economic development and advancement, however without official stated strategy or policy. Digital economy, together with Technopreneurship spirit would form the base for economic development in Palestine. This could be achieved through the adoption of a proposed framework of possible policy and strategy, which addresses the connections between various elements of such framework.

**Keywords** Knowledge economy · Digital economy · Entrepreneurship · Technopreneur · Economic development · Palestine

## 1 Introduction

As competition stiff more and more among economies and firms, countries all over the world should, and in fact, many are, rethink their economic status and competitiveness to survive in such globalization era. One main path to achieve this, or at least improve economic status, is the dependency on knowledge, in particular, knowledge creation and utilization. Such path would lead to what is known as knowledge

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G. Shahin (✉)  
Palestine Polytechnic University, Hebron, Palestine  
e-mail: [gshahin@ppu.edu](mailto:gshahin@ppu.edu)

M. Sharabati-Shahin  
Al-Istiqlal University, Jericho, Palestine  
e-mail: [mervat.shahin@pass.ps](mailto:mervat.shahin@pass.ps)

economy or knowledge-based economy, or recently digital economy. However, to create knowledge, a country should possess the necessary means and tools, one of which is ICT. However, ICT alone would not be enough, and should be accompanied with proper infrastructure and R&D. To have these, a country should have properly trained and educated human capital, equipped with the technopreneurship spirit; especially that of a technopreneur, which should be able to utilize R&D results and transform it into “profitable and competitive business”. These elements need to be harmonized by a proper regulatory umbrella encouraging move forward efforts and initiatives.

## 2 Knowledge Economy

Two broad trends distinguish economic life in the early 21<sup>st</sup> century: globalization and rising knowledge intensity (Hart 2006). Globalization may continually create larger markets and new niches for knowledge-intensive products; knowledge-intensive producers may gain access to a greater number and variety of skills and ideas as the new century wears on (Hart 2006). Actors in developing economies must have the capacity to acquire new knowledge-new ways of doing things- if they are to compete in the world economy (Kuznetsov and Sabel 2006). They claim that development depends on learning and learning depends on searching, development almost invariably depends on linking the domestic economy to the larger, outside world, because even the strongest economies quickly rediscover that they cannot generate all state-of-the-art ideas in isolation.

Hart (2006) explains two insights, which serve as the building blocks of a more complete economic theory of knowledge: first, some knowledge cannot be codified and shared with others through normal channels of communication and can only be transferred through prolonged interaction and practice called “Tacit” knowledge. Second, the capacity to use knowledge, whether codified or tacit, depends on what one already knows. So it is accumulation of knowledge. As Hart (2006) mentioned, in order to absorb an idea generated by someone else, one must understand its context. Hart explained that for scientific and technical knowledge, “absorptive capacity” includes advanced education and, often, experience. The essence of the Knowledge-based Economy is the capacity to absorb, process, and apply knowledge or intellectual property and translate it into a key source of competitive advantage together with the basic factors of production, which continue to be important in the Knowledge-based Economy (Al-Hawamdeh and Hart 2002). The emphasis is toward intellectual capital or knowledge as a source of value and wealth creation (Al-Hawamdeh and Hart 2002). In another study, Hart (2006), highlighted an important point about the transfer of knowledge, which is, the closer one to the source of knowledge, the more likely one is to be able to learn about it, absorb it, and appropriate benefits from it. For Hart (2006), the most economically valuable knowledge is generated in the advanced industrialized countries, which makes the talented people from others parts of the world travel to and reside in these countries in order to gain from this knowledge.

The engine of economic growth depends on the availability of factors of production such as land, labor, and capital. Although such production activities will remain an important component of growth, this millennium will be powered not by traditional production of goods and services but by knowledge-based initiatives. (Al-Hawamdeh and Hart 2002). On the other hand, innovation and entrepreneurship play a significant role in the economic growth of a country. In fact, innovation and entrepreneurship may be the most important factors that drive the process of economic development. However, while ultimately economic development is vital for the advancement of a country, we cannot confuse economic growth with social progress. Although both economic growth and social progress vary across countries and are related to particular details such as national culture, history, tradition and so on, social progress is also affected by things such as wealth distribution, individual/human rights and equalizations of gender rights, which are not directly affected by economic growth (Ulijn and Brown 2004). As Skrzyszewski (2006) quotes Thomas Stewart (1997), intellectual assets are intellectual material—knowledge, information, intellectual property, experience- that can be put to use to create wealth ... it is the sum of everything everybody in a company knows that gives it a competitive edge. These knowledge assets include skills, experience, expertise, culture, and awareness. However, to be useful in a practical sense, knowledge assets must also be formalized, organized, shared, and utilized in some productive way (Skrzyszewski 2006). These assets would form the base of a knowledge economy, where economic growth would be inevitable, however with a shift in the mind-set.

### 3 Entrepreneurship

Entrepreneurship is recognized as a major economic force, a major source of business and job development, and it has been identified as an effective tool for community and individual growth and change (Skrzyszewski 2006). According to Thurow (1999) quoted in Skrzyszewski (2006), entrepreneurs “are change agents capitalism” in that they “are the individuals who bring new technologies and new concepts into active commercial use”. Another description of entrepreneurs is found in (Madsen and Fisker 2004) where they have been characterised as the key actors in recognition, exploration and exploitation of new opportunities. Schumpeter (1934) quoted in (Swedberg 2000) says, the primary three things that drive entrepreneurs are: (i) the dream and the will to find a private kingdom; (ii) the will to conquer; and (iii) the joy of creating. Swedberg (2000) translate Schumpeter’s formula of drivers into “modern language” as: (1) the desire for power and independence; (2) the will to succeed; and (3) the satisfaction of getting things done. One important interpretation of Schumpeter understanding of entrepreneur is that entrepreneur does not have to be only a person, but can equally be an organization, whether political or economic, however, what matters is the behaviour (Swedberg 2000). Entrepreneurial activity and performance may be influenced by the overall effect of financial, human and social capital (Madsen and Fisker 2004), while Burt (2000) described them as relationship between players.



Entrepreneur can influence the financial, human and social capital (Madsen and Fisker 2004). [Capital here can be defined as Madsen & Fisker defined it, is the factor with a value that may increase proactive action of the entrepreneur while maintenance is needed in order to provide a rent return].

Madsen and Fisker (2004) mentioned that the value of the financial capital could be increased through proper investment in activities by the entrepreneurs. While human capital improves with education and experience which the entrepreneur may actively increase through participation in e.g. entrepreneur or management courses. Networking activities enhance, as explained by Madsen and Fisker (2004), the value of social capital. According to Skrzyszewski (2006), Entrepreneurs can be motivated by money and profit, but they can also be motivated by a desire to bring about social, organizational, or community change. Because entrepreneurship is an attempt to fill human needs, it is a more dependable source of solutions to societal problems or issues than are government-driven solutions based on political or bureaucratic need (Skrzyszewski 2006).

## 4 Technopreneur

It comes from two words Technology and Entrepreneur. It is widely and mainly used; and perhaps originated in the Southeast Asia region; mainly in Malaysia and Singapore. It refers to the one who is brave enough to operate, manage, own and to take the risk of operating any legal form of business through the aid of technology known to man; the one who manages all the factors of production to carry on with production. But as time pass by, the purview of the word “Technopreneur” changed dramatically and became a comprehensive word that signifies a lot of different aspects and forms of business. Technopreneurship means a business that is using technology as their business model. They don’t fear to fail. They take failure as a learning experience, a stimulator to look things differently and stride for next challenge. Technopreneurs continuously go through an organic process of continual improvement and always try to redefine the dynamic digital/knowledge economy. In a more professionally stated definition, Skrzyszewski (2006) used a term equivalent to Technopreneur, that is ‘knowledge entrepreneur’ to mean someone who is skilled at creating and using intellectual assets for the development of new ventures or services they will lead to personal and community wealth creation or to improved and enhanced services. The Knowledge Entrepreneur must have sufficient personal knowledge capital to be able to create value and/or wealth through the use of such knowledge capital (Skrzyszewski 2006).

## 5 Economic Development

It is not a new idea that knowledge does play an important role in the economy, nor is it a new fact according to Houghton and Sheehan (2000). Economic development is something that distinguishes countries all over the world, and is one main factor in the United Nations' classification of countries as developed, developing and under-developed. Each country takes measures to ensure its economic growth and development within its own context, however with huge variations. Developed countries are characterized with advanced knowledge creation and utilization, such as USA, Japan and Singapore, to name but a few. Developing countries with visions to move to developed countries status, such as Malaysia and India, are taking major and strategic decisions in this direction. One main pillar for their economic transition move is entrepreneurship, and in particular technopreneurship. Another strategic measure is the advancement of Research and development efforts geared towards strategically identified sectors and industries, with the aim of advancing knowledge creation (Ariff and Yanti 2002; Chua 2003; and Hashim et al. 2009). Indonesia has been trying to promote innovation through a national policy with an agenda directed mainly towards science and technology through the enhancement of S&T R&D; utilizing its results and strengthening its institutionalization, while providing proper incentives schemes, especially to industrial SMEs (Simamora and Aiman 2006). These efforts should lead to innovation, which eventually would strengthen the country's industrial competitiveness. Although economy has been growing and changing to a more digital based one, government imposed-social restrictions hinders the economy according to Artantri et al. (2021). In another research, Erkomaishili (2019) asserts that digital technologies in the form of e-commerce, digital process and infrastructure management, has an important role in productivity and national competitiveness. Ogloblina, et al. (2020) concluded that the absence of physical borders within the virtual space proved useful in providing access to data in cyberspace. They suggested that digital economy spreads through all areas within human life, be it education; management or others; and asserted that for the development of a digital economy; four main areas need development: the labor market, client base management, digital networks, and global internetization (Ogloblina et al. 2020). On a similar stand, Kholiavko et al. (2020) suggest that digitalization is a main factor leading to economic development especially in leading countries, which only can materialize through dynamic higher education with advanced scientific; technical and innovative activities, as HE produces highly qualified personnel.

Palestinian development in the medium and long term depends crucially on the strength of societal institutions, and the skills and resources of the people that bind them together (Fargues et al. 2005). Palestinian society has withstood numerous shocks during the past century, including sustained occupation. In the absence of strong institutions of self-government, an informal social support system has traditionally played an important role in maintaining social cohesion and alleviating poverty in Palestinian society (Fargues et al. 2005). Palestinian society and human capital is also strengthened by its rich cultural and intellectual heritage, and the strong

emphasis Palestinians have traditionally placed on education. Human development has been fostered by relatively strong public service provision, both to refugee and non-refugee communities (Fargues et al. 2005). According to Palestinian Central Bureau of Statistics, reported in Wafa (ND), illiteracy rate among Palestinians age 15 and above is only 2.5% in the year 2020, which is considered to be the least worldwide. This fact, lays a good foundation for a future digital economy in the country. On the higher education level, Sultan (2017) concluded and recommended that entrepreneurial activities are still at an early stage within the Palestinian universities systems, and several hindering issues should be overcome in order for these universities to move towards entrepreneurial ones (Sultan 2017). This indeed is an important issues and factor for the successful move towards digital economy.

### ***5.1 Digital Economy and Palestine***

In the Middle East, countries with limited resources such as Jordan is moving from energy based economy to knowledge economy. Similarly, oil-exporting countries (such as Saudi Arabia, Oman and UAE) are working this shift as well (Islaih 2007). Sustainable Development in Palestine in today's world should be focused on facilitating Palestinian access to the emerging human civilization through programs of human resource development, technology programs and partnerships and expansion of ICT infrastructures (Islaih 2007). To benefit from globalization, the Palestinian Authority should shift its economic vision to Knowledge Economy (Islaih 2007). According to a World Bank report on the Knowledge Economy and World Bank Operations (2005), the authors of the report stated, "with the spread of modern and efficient information communication technologies, the world economy has become more competitive and interdependent. As such, economic survival made it essential to have knowledge creation and use play a focal point in long-term development strategies. In other words, it is critical for countries make the transition to become Knowledge Economy".

Palestinian people have a better chances to succeed in a knowledge based world as argued by Islaih (2007), saying it is because they have the highest levels of education in the Arab world as young population and with high ICT penetration rates (Islaih 2007).

## 6 Proposed Framework for Future Policy for Economic Development Based on Entrepreneurship, Innovation and Digital Economy

It is clear that Palestine needs a national framework for economic development. Based on what have been discussed above, we propose a framework for economic development in Palestine. This framework is based mainly on technopreneurship, innovation and knowledge economy principles. Economic development needs national policy and strategy addressing the various elements that act as pillars of a strong economy. Taking into account the Palestinian status and the international experiences, the proposed framework would comprise the following dimensions.

### Regulatory Dimension:

- Laws, bylaws, policies, standards
- Intellectual property
- Financial system

### Education Dimension:

- Emphasis on science and mathematics at school level, leading to more students going to science/technology and engineering programs at HEI
- Incorporate ICT education at all school levels and for all subjects; with the aim of creating knowledge; not computer and information literacy.
- Rethink higher education system.
  - Promote entrepreneurial spirit and culture among staff and students.
  - Emphasis on entrepreneurship and technopreneurship in each and every discipline
  - Emphasize, prioritize and gear R&D at HEI towards knowledge creation especially within the identified priority sectors
  - Encourage U-U and U-I linkages and partnership, locally and internationally
  - Encourage and improve R&D links with international institutions and firms

### Human Capital Dimension:

- ICT training for all
- Special ICT training of potential personnel geared towards R&D in all sectors, however, with special emphasis on strategic sectors
- Promote entrepreneurial and technopreneurial characteristics and values
- Awareness of the impact of ICT and R&D on economic development

### ICT Dimension:

- Improve telecommunication infrastructure.
- Internet access for all schools
- All pupils should have email accounts

- High bandwidth for Internet access at all HEI, R&D centers, organizations, and firms
- Invest more, and provide better services at reasonable cost.
- Create units/bodies at Ministry to promote technopreneurship spirits and initiatives in the field of ITC
- Promote and institutionalize ICT training for all, and in all sectors

**High Priority Sectors/Industries Dimension: (Examples)**

- Biotechnology/
- Pharmaceutical sector
- Renewable energy (solar, wind, ...)
- Food industry
- ICT sector
- ...

**Knowledge Infrastructure Dimension:** to enable knowledge generation, acquisition and utilization.

- R&D system to generate knowledge.
  - Strengthen existing ones, and
  - Establish new ones based on classifying R&D as necessity and strategic
- Technology transfer system: knowledge and technology of R&D to industry and business
- Innovative firms and entrepreneurs
- Financial system promotes investment in identified priority sectors especially those with high **risk**

**R&D Output to Business Dimension:**

- Entrepreneurs to grasp new ideas based on R&D results
- Create the culture of entrepreneurship within firms

## 7 Conclusion

It is clear that economic growth and competitive advantage in countries and firms; highly depend and shaped by knowledge creation and utilization. To be transformed into a knowledge-based economy, or more likely digital economy, countries, like Palestine, should change their paradigm and put into action suitable framework to achieve this. However, such framework would address several issues and thus consists of several dimensions, such as those mentioned above in the proposed framework. This framework is meant to be considered as a concept framework that needs further discussion and research to evolve as an acceptable and applicable framework.

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# Feasibility of Central Bank Digital Currency for Blockchain-Based Zakat in Indonesia



Zulfikri Zulfikri , Auwal Adam Sa'ad , Salina Kassim ,  
and Anwar Hassan Abdullah Othman 

**Abstract** Distrust to zakat institutions is one of the causes zakat funds not reaching the potential amount in Indonesia. Blockchain technology, with its capability of tracing, can provide transparency information. The Blockchain-based Zakat can potentially overcome distrust issues to zakat institutions. However, the legal status of cryptocurrency is still skeptical. This study aims to see the feasibility of CBDC can be implemented in blockchain-based Zakat in Indonesia. The method used in this research is the qualitative method. An extensive literature review method was utilized to identify and analyze the relevant literature in order to propose the model. This study suggests Blockchain-based Zakat with the use of CBDC and BAZNAS as the zakat agencies.

**Keywords** Blockchain · Zakat · CBDC · Trust

## 1 Introduction

Zakat is one of the five pillars of Islamic principles. It applies to all Muslims who meet the qualifications, such as those who earn an income or have assets they can donate to the benefit of the Muslim community. The goal of the Zakat is to reduce economic disparities within and between communities. This goal can be achieved if the zakat institution can distribute more money to the needy. In Indonesia, BAZNAS (Badan Amil Zakat Nasional) is the official institution appointed by the government of Indonesia based on the act number 23, the year 2011. Apart of BAZNAS, there is *Lembaga Amil Zakat (LAZ)* or The National Amil Zakat Institution. The National Board of Zakat (BAZNAS) was formed by the government, while LAZ, formed by the community. LAZ specifically to carry out community-based Zakat management.

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Z. Zulfikri (✉)

Department of Management, Faculty of Economic and Business, Universitas Muhammadiyah Sumatera Utara, Medan, Indonesia  
e-mail: [zulfikri@umsu.ac.id](mailto:zulfikri@umsu.ac.id)

Z. Zulfikri · A. A. Sa'ad · S. Kassim · A. H. A. Othman

IIUM Institute of Islamic Banking and Finance, International Islamic University Malaysia, Kuala Lumpur, Malaysia

BAZNAS established the Zakat Collection Unit, known as the UPZ, to aid in the collection of Zakat (Andayani et al. 2019).

However, there are concerns with zakat management, such as zakat payers being dissatisfied with zakat distribution and assertions of a lack of transparency in zakat management, which leads to a lack of trust among zakat payers to donate their Zakat through zakat institutions (Nur et al. 2021). There are issues with zakat management, such as Owoyemi (2020) showing that more than 3,000 people in Malaysia announced their intention to stop contributing to zakat organizations. Due to mismanagement of the agency's fund, which was used for leisure activities and false salaries for employees and their families. Due to a lack of trust in zakat agencies, zakat payers have opted to donate their Zakat directly to the recipients. According to Samir and Fadili (2019), people prefer to donate directly to the beneficiaries as it can give them a certain level of satisfaction when they can get direct interaction and see the results after the payment is made. Meanwhile, if they give Zakat to the agencies, they can only get an annual report on how the money was spent.

One way to address the issues is to increase zakat transaction transparency by implementing a trust model such as Blockchain in zakat management. Due to its transparency and ability to track transactions, Blockchain is an excellent answer to this problem.

## 2 Literature Review

### 2.1 Zakat

Zakat has the meaning of purification and expansion (Qardawi 1999). Zakat's primary goal is to promote socio-economic equality in society. To put it another way, Zakat is the practice of transferring a portion of one's income to those who don't have much, in accordance with Islamic Shariah Law (Kahf 1989). Allah orders the collection of Zakat in Quran as,

Take alms out of their wealth, so that thou mayest cleanse them and purify them thereby (Al-Taubah 103).

Zakat is classified into two types: Zakat al-Fitr and Zakat of wealth. Zakat is the payment of a specified percentage of an eligible Muslim's income or property for the benefit of the Muslim community. This principle's primary objective is to improve the quality of life for the poor, abolish selfishness in the community, and eradicate poverty (Sulaiman and Jamil 2015).

Research conducted by Islamic Research and Training Institute (IRTI) shows that Zakat's annual potential amount is up to \$1 trillion. While Zakat's ability to make a positive impact is limitless, it hasn't yet been fully realized. In Indonesia, for example, Zakat has the potential to contribute 217 trillion rupiahs (\$15 billion) per year if appropriately implemented. BAZNAS, Indonesia's official zakat body,



collects only USD 261.178 million in Zakat, or just 1.28% of its total potential zakat collection of USD 20,263 million (Obaidullah and Shirazi 2015).

The amount of Zakat money collected to date is still a long way short of what it could be. That is, eight Asnaf (Mustahiq) will not receive the optimal quantity of money. There are various reasons why money allocated to BAZNAS aren't being used to their full potential. Muzakee mistrust in Zakat institutions is one of them (BASNAS2017).

## 2.2 *Blockchain Technology*

Blockchain is an open distributed database that carries out transactions on an open decentralized ledger (Nor et al. 2017). More precisely, it refers to a data chain of transactions between users stored in blocks, with each block encrypting a certain amount of data using cryptographic hashing. Each blockchain transaction will be checked and validated by network nodes. The security provided by blockchain encryption is critical to preventing sensitive data from falling into the wrong hands, being manipulated, or being counterfeited. For instance, every participant has their unique key, known as cryptographic "hash", making them pseudo-anonymous.

The blockchain transaction promotion procedure starts with encrypting a digital security code. The second step is to authenticate the transaction while protecting sensitive data. Finally, the transaction is immutable and transmitted to all users.

## 2.3 *Smart Contract*

According to Sillaber and Waihl (2017), Nick Szabo introduced the term smart contracts and first described how contracts between two parties could be secured on computers without requiring any third party:

A set of promises, including protocols within which the parties perform on the other promises. The protocols are usually implemented with programs on a computer network or in other forms of digital electronics; thus, these contracts are 'smarter' than their paper-based ancestors.

Kosba et al. (2016) stated smart contracts shall be provided as programs run by all miners that permit parties not necessarily aware of and trust each other to transact securely with each other. A consensus protocol enforces the correct implementation of these programs.

As a result, a smart contract is composed of three distinct components: the contractual agreements between the parties, the governance of the preconditions required for the contractual obligations to be fulfilled, and the contract's actual execution (Koulu 2016).

## ***2.4 Legal Status of Blockchain and Cryptocurrencies in Indonesia***

The Indonesian Financial Authority Service (OJK) released fintech rules in 2016. Regulation No. 77/POJK.01/2016 on Money Lending Services using Information Technology. The law does not mention cryptocurrency. A new OJK regulation on digital financial innovation in the financial services sector was published on August 16, 2018. Regulation primarily governs digital financial innovations, which can only be licensed following successful regulatory sandbox trials (Widjaja 2019).

Financial Technology Regulation No. 19/12/PBI/2017 was also issued by Bank Indonesia in 2017. A blockchain system was not officially outlawed, but it was clear that virtual currency could not be utilized to pay. In Indonesia, only Rupiah can be used to pay, including online. Regulatory sandbox trials are required for all financial organizations wishing to adopt new technology. Only qualified people can use financial technologies (Widjaja 2019).

As stated previously, until now, Indonesian cryptocurrency policies have been suspicious about the ecosystem's ability to contribute to national financial stability and economic progress. Meanwhile, blockchain developers continue to promote the creation of blockchain-based tokens, which are extensively utilized to represent specific assets. Tokens are similar to the word "sign" in its definition. They can be used to sign fiat money, coupons, and smart property. This was done to make the Blockchain's digital assets scarce (Miscione et al. 2018).

## ***2.5 Central Bank Digital Currency (CBDC)***

Central Banks and scholars are debating whether a central bank might create a digital currency. According to the Bank for International Settlements (BIS) report published in January 2020, 70% of global central banks are considering issuing their own digital central bank currency. 10% of central banks questioned plan to deploy digital currency in the next three years, and 20% in the next six years (Boar et al. 2020).

A CBDC is an electronic, decentralized, peer-to-peer currency issued by a central bank. The accessibility of CBDCs is further differentiated between retail and wholesale applications (Wandhöfer 2017). Kuo et al. (2021) claim that CBDC is the next step from metal-backed banknotes to fiat money and as an electronic liability that may be used for payment and value storage.

Also, 15% of global central banks believe a CBDC might be introduced within three years (an additional 18% in the next six years). More central banks are looking into CBDCs and intend to introduce their digital currency in the future years. So the arrival of the first CBDCs is imminent. (Klein et al. 2020).

A digital currency, or Central Bank Digital Currency (CBDC), is currently being developed by Bank Indonesia. They will look at the economy and the digitization effort by Bank Indonesia. Bank Indonesia presently researching Rupiah CBDC to

assess its potential and benefits. Design, technology, and risk mitigation are studied. In this assessment, Bank Indonesia collaborates with other central banks via international forums. This collaboration is to examine the issuance of digital money or CBDC Rupiah. (Widyastuti 2021).

### 3 Methodology

In order to propose a suitable system, previous various blockchain platforms for donation and Zakat are reviewed. It is listed in the Table 1 below.

Lushi (2019) proposed a token called Charity Token to pay a donation in blockchain technology to recover the trust on charity projects and offer full transparency to the use of charity funds. The charity token can be easily verified with its name on it and easy to track usage of the donation and the development of a project. The financial institutions will make it possible to exchange money for tokens when a donation takes place and to accept these tokens and exchange them into a fiat currency at the time reach to the intended project. Meanwhile, Khan and Ouaich (2019) proposed Zakaah Coins, a cryptocurrency, by transferring cash to the bank account of the waqf. When the donor has Zakaah Coins in his wallet, he can donate these coins to any project he deems fit. Using cryptocurrency has been used by several authors for the payment of Zakat. It is notable that none of the work discussed considers central bank digital currency.

Sharia-compliance rules need to take into consideration when developing Blockchain-based Zakat, which can improve efficiency on the operations of zakat institutions. However, there's still in debate about the rule of using cryptocurrency. As there is an ongoing discussion where Central Bank Indonesia is going

**Table 1** Comparison of blockchain platform for donation/Zakat

| No | Author                 | Payment method            | Cryptocurrency | Smart contract | Purpose for |
|----|------------------------|---------------------------|----------------|----------------|-------------|
| 1  | Lushi (2019)           | Charity token             | Yes            | Yes            | Donation    |
| 2  | Saleh et al. (2019)    | Cryptocurrency (Bitcoin)  | Yes            | Yes            | Donation    |
| 3  | Rejeb (2020)           | Cryptocurrency (Tether)   | Yes            | Yes            | Zakat       |
| 4  | Nur et al. (2021)      | Cryptocurrency (Ethereum) | Yes            | Yes            | Zakat       |
| 5  | Singh et al. (2020)    | Cryptocurrency (Ethereum) | Yes            | Yes            | Zakat       |
| 6  | Lee et al. (2018)      | Cryptocurrency (Ethereum) | Yes            | Yes            | Donation    |
| 7  | Khan and Ouaich (2019) | Zakah Coins               | No             | Yes            | Zakat       |

to introduce CBDC; hence this study proposed CBDC as payment method to pay in Blockchain-based Zakat.

### 4 Proposed Architecture

#### 4.1 Process

Muzakee will download the BAZNAS app from the smartphone app store, and they need to register and create an account. Muzakkee can purchase the Indonesian CBDC directly from the Central Bank via the App provided by BAZNAS. The BAZNAS app offers to purchase CBDC from commercial banks who have collaborated with BAZNAS to provide the CBDC. Once the digital money is purchased, it will be in the digital wallet of the Muzakee within the App, and then they can straightaway pay Zakat. Prior to consenting to sign a transaction, a smart contract checks to see if the requested transactions meet all the contract’s requirements or pre-determined conditions. A blockchain account will be created on the network for every Mustahiq in the zakat institution’s database. As an exchange platform user, Mustahiq receives these zakat funds in crypto-currency form and subsequently converts them into fiat money. The flow zakat payment using this system is very straightforward. The flow chart illustrates in the Fig. 1.

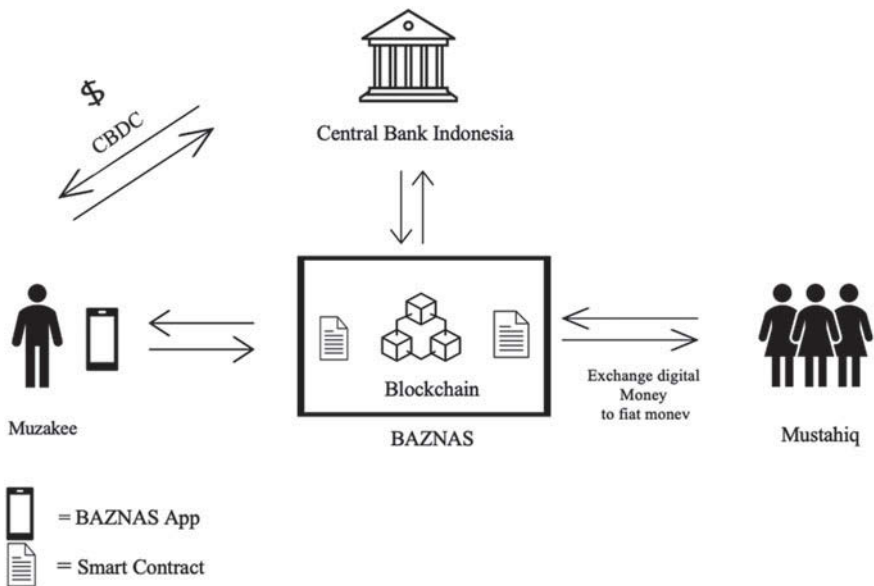


Fig. 1 Proposed framework Source: Author’s work

## 4.2 Benefits

- With the existence of CBDC, the Blockchain-based Zakat in Indonesia will be easily implemented in any zakat institution in Indonesia as Muzakee can use legal digital currency.
- The smart contract deployed within the Blockchain can quickly identify when one Muzakee are eligible to pay Zakat or reach nishab (threshold) while the smart contract supervises the funds calculation.
- The purpose of using Blockchain is the data immutable, and once the data is stored in Blockchain, it can't be erased except by a trusted entity (Farooq et al. 2020). The smart contract applied in the Blockchain will let Muzakee know where the funds have been transferred and for what purpose.
- The Blockchain-based Zakat ensures time efficiency in delivering funds because no intermediary is needed when transferring funds to Mustahiq. During the process, the Muzakee will get informed on how the funds are spent (Farooq et al. 2020)
- Using the Baznas App, Muzakee and Mustahiq can connect easily via the App, and Mustahiq can easily earn zakat funds. (Rejeb 2020).

## 5 Conclusion

This study attempts the feasibility of using CBDC on Blockchain-based Zakat in Indonesia. The developing model integrates the institutions of Zakat with elements of Blockchain technology, smart contract and the CBDC as the money to be paid Zakat via the App. This study also explores the significance of Blockchain and smart contracts, which can be used in zakat administration. This proposed model is expected to ease the process of zakat payment through a digital platform, given that the user has an internet connection. The blockchain technology provided the record is immutable and is transparent to all people; thus, Muzakee can see where the zakat fund is allocated.

Our findings show that the central bank of Indonesia urge to release CBDC as soon as possible so that Indonesian people can have their own digital currency. There would be some definitive judgements made by Islamic scholars on whether certain technical aspects like smart contracts and CBDC are compliant with shariah so that future models for Zakat or any other area of Islamic finance can be developed.

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# Factors Influencing the Consumer Adoption of Digital Banking Services During the Covid-19 Pandemic in Vietnam



Duc Tien Ngo, Thu Ha Phung, and Tuan Vu Chu

**Abstract** The Covid-19 pandemic has created an opportunity for Vietnam to digitalize economy faster in many industries, especially banking service. Hence, this research paper aims to discovery the main determinants affecting the digital banking service adoption of Vietnamese people during the Covid-19 time. Conducting an online survey with 513 respondents during the social distancing period owing to the 4th wave of corona virus spreading in Vietnam, the researchers analyze the role of Covid-19 as a reason to create a dilemma situation pushing people to choose digital banking services to keep them be safe in the pandemic. Basing on the theory of consumer behavior models, the study indicates five determinants which influence the adoption of digital banking services in Vietnam in the context of Covid-19 spreading, as follow: banking service safety, online shopping preference, recommendation, bank marketing and acceptant of perceived risk. Basing on the results of data analyzation, the affection of banking service safety and online shopping preference contributes significantly to the rise of digital banking service adoption during the corona pandemic. And to be avoiding to the threat of covid-19 infected, people surveyed intend to accept the risk caused by digital banking services. These findings can contribute to understanding consumer behavior under the affection of situation (such as disaster or pandemic) comprehensively, help Vietnamese banks to build stronger strategies to enlarge their digital banking service market shares.

**Keywords** Digital banking · Digital banking service · Covid-19 pandemic

## 1 Introduction

Covid-19 pandemic started all over the world from the beginning of 2020. With the deep integration with global economy, Vietnamese economy has been under the affection of ongoing Covid-19 pandemic, but has shown as a resilient economy by

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D. T. Ngo (✉) · T. H. Phung  
Academy of Finance, Hanoi, Vietnam

T. V. Chu  
National Economics University, Hanoi, Vietnam



the estimated GDP growth rate 2.9% in 2020 (Vietnamese General Statistics Office, 2020). The key reason to this successful result is the compliance of Vietnamese people to polices against the spread of covid-19 virus issued by the government. One of these policies is social distancing requirement, which is considered as the most effective way to control the spread of virus, however, impacting imperfectly on most of business industries. Nevertheless, digital banking is a rare sector which is now witnessing a big opportunity to boost up. Digital banking is enjoying a period of remarkable development in Vietnam. Evolving the digital adoption among young population combined with social distancing because of covid-19 pandemic are creating a new wave of digital banking service usage, which accelerate Vietnamese banks on the runway to complete their digital banking platforms.

Although Vietnamese banking system has applied digital transformation for several years, only several achievements have been recorded as upgrading front-end digital delivery, optimizing processes, however, not including huge changes in back-end operating activities, infrastructure, technology and underlying business models. Therefore, when the new wave has started, some banks are now having bigger plans to enlarge their technology stack in order to provide innovative digital banking services adding more values to their clients. Nowadays, Vietnamese banks have been more agile, flexible and capable of meeting their clients' needs anytime and anywhere. The organizational changes of bank's level to gain the clients' confidence and trust in digital banking services is most important factor (Kaur et al. 2021).

According to the context of Vietnam, the basic objective of research and theory reported here is to identify determinants affecting consumer's habit of banking service usage owing to the impact of Covid-19 pandemic. The observational phenomenon is that many clients started to use digital banking service, shifting from the habit of using traditional banking to using electronical banking. The study develops a theoretical model to investigate determinants affecting Vietnamese clients' decision on digital banking service adoption under Covid-19 pandemic. According to this model, we suggest that people now prefer digital banking service more than the period before covid 19 pandemic. To test the theoretical model that implications, we conduct empirical analyses using online-collected data from over 500 Vietnamese people living across the country. This article contributes to the literature on CDM of digital banking service.

In fact, Consumer Decision-making models (CDM) have gained the concentration of researchers all over the world for many decades. Since the first CDM introduced in the 1960s, the frameworks for CDM have been developed with a variety of forms (see Andreasen 1984; Howard and Sheth 1969; Nicosia 1966; Rickwood and White 2009 and etc.). Among many researches on CDM, it has been really difficult to find a model which relates well to special products like financial services (Milner and Rosenstreichin 2013) in general and digital banking service in particular.

Besides, several empirical researches have applied the Technology Acceptance Model (TAM, Davis 1989) for analyzing the adoption of two popular types of digital banking services, namely internet banking and mobile banking (Alalwan et al. 2016; Alalwan et al. 2017; Chiou and Shen 2012; Marakarakandy and Dasgupta 2017; Motazemi and Qahri-Saremi 2015 and etc.). In addition, other researches analyse

the acceptant of consumers to online banking service by using the upgraded forms of TAM (see Kolodinsky et al. 2004; Karjaluoto et al. 2018; Pham et al. 2013). In fact, there is limited empirical study analyzing the changes in the consumer adoption of digital banking under the impacts of life situation changes, for example, the happening of worldwide disasters. Hence, in our research, we will analyze the determinants effecting the changes of digital banking service adoption in Vietnam during Covid-19 pandemic as case study.

Our research proceeds as follows. In the first part, we introduce the origin and context of study. Then, the second part mentions the background of CDMs as well as the digital banking services. After introduction and literature review, we develop a range of hypotheses and a theoretical model to illustrate the research issue in Sect. 3 of the article. The fourth part presents the way to collect data and empirical methodology. Next, Sect. 5 shows the results of study and the findings as well as discussion are shown finally.

## 2 Literature Review

### 2.1 *Digital Banking Services*

Digital banking has become an irresistible business trend thanks to the 4th Industrial Revolution along with the development of digital economy. Therefore, digital banking is necessary for banks to optimize value to their clients (Patsiotis et al. 2012). The origins of the automated services in banking industry go back to the 1960s (Shaikh and Karjaluoto 2017), when the huge number of electronic transactions, data processing turned out to be impossible without the use of such services, leading to the invention of ATMs (at the end of the 1960s and 1970s), telephone banking and POS solutions (1980s), and online banking and mobile banking (late 1990s) (Feher and Varga 2017). There are mainly four interconnected, mutually reinforcing elements making the leading digital banks, including connectivity, automation, innovation, and decisioning, detailed as follow: (i) Connectivity refers to how can banks use rapidly growing social networks to build loyalty and competition-disrupting offerings; (ii) Automation refers to how to harness digitalization in process re-design for a better customer experience and more effective use of resources; (iii) Innovation refers to how banks should continue to renew themselves, given the rapid pace of change in the industry; (iv) Decisioning refers to how big data can be used to make better, faster, and more accurate decisions regarding customer purchase choices as well as banks' decisions on issues such as risk. Consequently, digital banking can be defined as a form of banking activities which based on a digital core, ensuring maximum utility to both the bank and the client in terms of cost saving and benefit enhancement.

The scope of digital banking service covers a range of banking services via digital devices (e.g. telephone banking, electronic banking, mobile banking, contactless cards, ATM and point of sale), not including Paypal, to make transactions with banks. Telephone banking enables clients to interface with banks by telephones (Alalwan et al. 2016). While internet banking connection allows customers to perform a wide range of transaction, e.g. writing checks, paying bills, transferring money, printing statement, and checking the balance (Oliveira and Popovic 2014). Mobile banking helps consumers to execute financial or non-financial transactions via a mobile device, e.g. cell phone or tablet (Shaikh and Karjaluo 2017).

## 2.2 *Consumer Decision-Making Models*

Starting from the first study of Nicosia (1966), consumer decision-making models have been developed by scholars for several decades. The theories of CDM applied for many industries, including financial services. In this paper, we prefer some forms of CDM which provided suggestion to our research on digital banking service adoption.

Howard and Sheth (1969): From this study, a flow created with four main elements: (i) inputs (marketing and social stimuli), (ii) perceptual constructs (attention and information search), (iii) learning constructs (motives, choice criteria, brand comprehension, leading to an attitude, confidence, intention, and satisfaction), and (iv) outputs (purchase, intention, attitude, brand comprehension and attention) (Howard and Sheth 1969). And, exogenous variables were added in the model as the fifth component, including the importance of the purchase, consumer background, reference group, personality traits, time available, and financial situation. At the time of publication, this model was considered as an innovative approach to analyze consumer decision-making process. The marketing variables and social influences were a huge advance on building input-process-output models. By contrast, the Howard and Sheth (1969) model significantly succeeded with its academic complexity, likely employing a variety of multiple variables and providing the identification of attitude formation, predisposition and time. Nevertheless, its complication is its limitation because other research proved that consumers did not always follow entire process of the model.

Andreasen (1984): The CDM suggested by Andreasen (1984) reflects the effect of changes on life situation on purchasing goods or services of clients. This research offered a theoretical model to analyze the relationship between the changes in consumer life status and the changes in consumer liking with the brand and the product. A sample of 286 people in Los Angeles was created for the research with several characteristics suitable with the ones of the city's adult population, as follow: 45% of sample were male; 31% had lived alone all their lives and 46% just got marriage, average age was 37.6 years old; median income from \$20,000 to \$30,000. The model employed three intervening variables, namely stress, life style, dissatisfaction. According to the empirical test, life status change proved that it could measure the differences among households according to likelihood of changing. The

key finding is that the respondents with the changes in life status intended to change their favorable brands naturally. Hence, the life status changes can be considered as an important determinant impacting on digital banking service adoption.

### 3 Hypotheses and Proposed Model

Basing on the actual condition of Vietnam under Covid-19 pandemic and inheriting the theoretical bases of consumer decision-making models as well as digital banking service, the authors propose a model that is based on some integrated elements of the above models (Fig. 1).

It is hypothesized in the study that the elements contributed to the rise of digital banking service adoption (DBSA) in Vietnam during 2020, as following:

**Ho: Adoption of digital banking service.**

**H1: Banking service safety (BSS) has a significant effect on digital banking service adoption.**

During the Covid-pandemic, the first requirement of service industries is making clients feel both safe and embraced owing to the fact that close contact may lead to serious ill or death (Berry et al. 2020). In other words, the Covid-19 pandemic has been a big event which impacts on consumption behavior of people (Andreasen

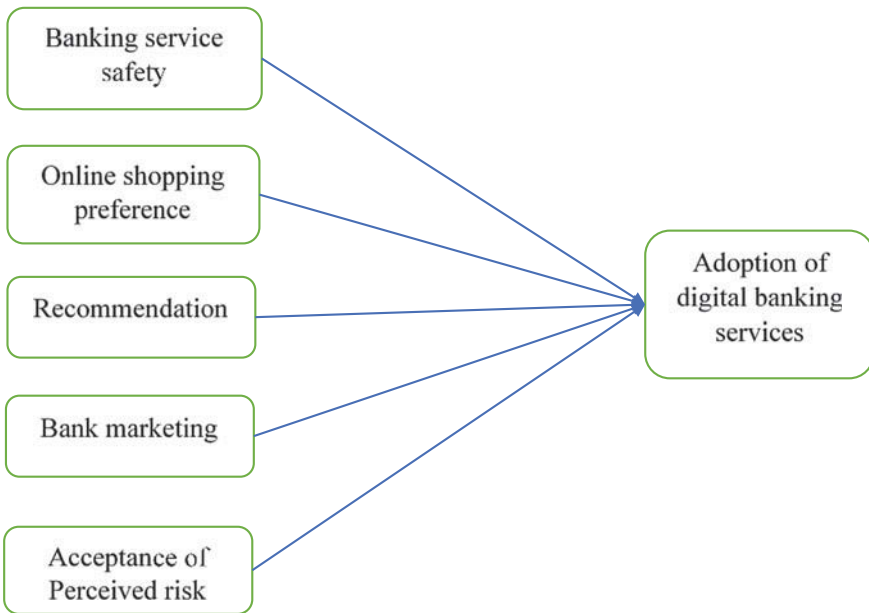


Fig. 1 Model proposed by the author

1984), leading to priority changes in choosing banking service, or the type of financial products being considered (Milner and Rosenstreich 2013). Digital banking services bring to clients a perfect way to stay at home and make transactions without close contact.

**H2: Online shopping (OS) preference has a significant effect on digital banking service adoption.**

Follow the research of Pham et al. (2020), Covid-19 plays an important role to encourage shoppers towards online shopping in Vietnam. Moreover, there is a positive relationship between the use and reliability of online payment and the decision of online shopping (Aldiabat 2019). In addition, the cashless payment methods are also recommended all over the world to prevent the spread of covid-19 virus. Therefore, our research will focus on testing the relationship between the rise of shopping preference and digital banking service adoption.

**H3: Recommendation (RE) has a significant effect on digital banking service adoption.**

During long days of social distancing, people have spent more time with their families at home or their friends. This situation leads to the fact their consumption behavior will be affected by the recommendations of their others staying with them. For instance, a consumer may ask a close friend about which attributes are important to consider for a given product (Price and Feick 1984).

**H4: Bank marketing (BM) has a significant effect on digital banking service adoption.**

Marketing is one of main inputs employed in CDM by Howard and Sheth (1969), affecting the choice of clients when they need to find products. Digital banking marketing impacts on customer experience and financial performance (Mbama et al. 2018). Thanks to the banks' strategy of digital banking marketing such as advertisement, attractive offers and etc., customers can be encouraged to try digital banking services and their satisfied experiences with digital banking service will contribute to better financial performance of banks (Mbama et al. 2018).

**H5: Acceptant of Perceived risk (APR) does not have a significant effect on digital banking service adoption.**

Perceived risk refers to the uncertain level faced by users in certain buying situations (Cox and Rich 1964). In the digital banking service acceptant context, risk influences clients' confidence in their behavior, and this uncertainty grows when the probabilities of outcomes are unknown (Im et al. 2008). In particularly, when people use digital banking services, their perceived risk may be the worst expectation in finding the best achievement from these services (Yousafzai et al. 2003). Yet, the more perceived risk, the less adoption of digital banking service will be recorded (Al Kailani and Kumar 2011). However, covid-19 pandemic has created a dilemma situation to consumers when acceptant of perceived risks from digital banking service is only choice to help them be safe in the context of virus spreading.

## 4 Hypotheses and Proposed Model

### 4.1 Sampling Method

In this study, we apply the exploratory factor analysis (EFA) to evaluate the hypothesis mentioned above. Following the study of Hair et al. (1998), the ratio of observed variables to the independent variables should be 5 observed variables for each independent variable. And an independent variable needs at least 30 observations to get the desired level of the study and assure the generality of its results. Therefore, with study consisting 5 independent variables, minimum size of the sample should be equal to 150 observations.

### 4.2 Data Collection

Basing on the items mentioned in literature review section as well as the studies cited in hypothesis part, we designed the research survey. The survey included two parts as follow, part 1 focuses on the general information of respondent to help us portrait their habit of bank service usage and part 2 includes a range of dependent variables using the Linkert's scale 5 (1 is equivalents to completely disagree and 5 is equal to completely agree, respectively) (Linkert 1932). The official online survey is originally designed in Vietnamese and conducted using the google form tool with the link sent directly to the participants. Eventually, we collected 513 distributed votes.

### 4.3 Method of Data Analysis

Firstly, to test the scale's reliability, we employed Cronbach's Alpha coefficient of each variable. According to the research of Nunnally and Bernstein (1994) indicates that Cronbach's Alpha coefficient of variable being bigger than 0.70 presents for its good reliability and items of a variable have a total correlation coefficient being greater than 0.3, they will be considered as reliable to use for the deep analysis.

Secondly, explanatory factor analysis (EFA) was applied to test the trustworthiness of each structure and then create representative variables. Following Hair et al. (1998), the conditions to pass the EFA test includes:

- (1) The P-value in Bartlett's test is required not to exceed 0.05;
- (2) The KMO coefficient must have the value from 0.5;
- (3) The Eigenvalue of a factor exceeding 1 will be selected and total variance extracted of all selected variables need to be over 50%.

Thirdly, we employed SEM approach to inspect the research hypotheses, including CFA analysis.

#### **4.4 *Characteristics of Sample***

With a sample of 513 individuals, 63% of the sample are female, 37% of people surveyed are male and the age of respondents is mainly from 18 to 34 (accounting for 75.4%). Most of them have educational background from university to above (44.1% graduated from universities or colleges and 27.3% attended master or PhD courses). 55.8% of the sample access on the internet by mobile, personal computer, laptop or tablet; 38.8% of the sample use mobile to access the internet and only 5.5% of it connect to the internet by only one of devices like personal computer or laptop or tablet. In the survey, only 1.4% of respondents do not have bank account while 28.7% of sample having one bank account and 70% having at least two bank accounts in different banks.

#### **4.5 *The Reliability and Validity Test***

The reliability test is presented in Table 2. As a result, the reliability of all variables is acceptable and can be used for in-depth analysis (Hair et al. 1998).

#### **4.6 *Empirical Results***

##### **4.6.1 *The Confirmatory Factor Analysis (CFA)***

The confirmatory factor analysis (CFA) is considered as the first step to inspect the overall fit of the model to remove unnecessary or correlating similar items (DeCoster 1998). We used STATA to make CFA and found out that the comparative fit index (CFI) of our study was 0.940, being greater than 0.90, so it meets the criteria of Brown (2006). Moreover, the root means the square error of approximation (RMSEA) of study is 0.065 (smaller than 0.08) which can indicate adequate fit of the model (Kenny et al. 2014).

##### **4.6.2 *Convergent Validity***

According to Hair et al. (1998), the factor loadings of the measurement items for each latent variable must be greater than 0.5 means to have significant convergent validity. Table 4 shows a high degree of reliability for factor loading each variable to its variable group with values all over 0.5. Hence, CFA model is accepted and we can apply the structure model in the following parts.

### 4.6.3 The Structural Equation Model Analysis

*Model fit:* Table 5 shows the result of inspecting the suitability of SEM applied in this research. We also used STATA to make it and found out that the model meets all requirements with  $CFI = 0.908$  and  $RMSEA = 0.065 < 0.08$ . Considerably, the SEM model has an error within the acceptable range. These figures support the result of an acceptable fit between the conceptual model and the empirical model in this research. Then, the SEM model with errors within the acceptable range can be applied to get to the final result.

Table 6: Among the positive factors, the banking service safety has the strongest effect (0.953), the second is the recommendation (0.842), the third is acceptance of perceived risk (0.784) and the next is the banking marketing (0.294). The online shopping has the lowest impact on the adoption of digital banking service during the Covid-19 pandemic (Table 1).

**Table 1** Characteristics of surveyed sample

| Informational variable           | Categories  | Frequency | Percent (%) |
|----------------------------------|---|-----------|-------------|
| Gender                           | Male  | 190       | 37          |
|                                  | Female  | 323       | 63          |
| Age                              | Under 34  | 387       | 75.4        |
|                                  | 35–55   | 106       | 20.7        |
|                                  | Above 55  | 20        | 3.9         |
| Education                        | Secondary school                                    | 5         | 1           |
|                                  | High school   | 142       | 27.7        |
|                                  | University/College                                  | 226       | 44.1        |
|                                  | Postgraduate  | 140       | 27.3        |
| Device to access on the internet | Mobile  | 199       | 38.8        |
|                                  | Personal computer                                   | 8         | 1.6         |
|                                  | Laptop/Tablet                                       | 20        | 3.9         |
|                                  | All   | 286       | 55.8        |
| Number of bank account           | None  | 7         | 1.4         |
|                                  | Only one bank account                               | 147       | 28.6        |
|                                  | At least 2 bank accounts in different banks         | 359       | 70          |
| Bank card                        | Domestic debit card (ATM)                           | 465       | 90.6        |
|                                  | International debit card (VISA, Mastercard, JCB...) | 110       | 21.4        |
|                                  | Credit card   | 145       | 28.3        |
|                                  | None  | 13        | 2.5         |
| Digital banking service usage    | Used  | 485       | 94.5        |
|                                  | Not yet   | 28        | 5.5         |



**Table 2** Summary of the reliability and validity test

| Factor | Number of items | KMO test | Eigenvalues | Bartlett's test (sig.) | Cronbach's alpha |
|--------|-----------------|----------|-------------|------------------------|------------------|
| BSS    | 4               | 0.5049   | 2.72195     | 0.00                   | 0.9192           |
| OS     | 3               | 0.5023   | 1.79809     | 0.00                   | 0.9119           |
| RE     | 2               | 0.5025   | 1.12732     | 0.00                   | 0.9081           |
| BM     | 3               | 0.5157   | 2.07158     | 0.00                   | 0.9035           |
| APR    | 4               | 0.5447   | 2.00117     | 0.00                   | 0.9724           |
| DBSA   | 2               | 0.6167   | 2.00270     | 0.00                   | 0.9102           |

**Table 3** Model fit of CFA

| Index | Likelihood ratio | RMSEA        | CFI          | TLI          | AIC    | BIC    |
|-------|------------------|--------------|--------------|--------------|--------|--------|
| Value | 624.222**        | <b>0.065</b> | <b>0.940</b> | <b>0.922</b> | 20,056 | 20,352 |

\*\* significant 5%

**Table 4** Regression weights

| Factor loading |   |      | Estimate |
|----------------|---|------|----------|
| BSS1           | ← | BSS  | 0.901    |
| BSS2           | ← | BSS  | 0.831    |
| BSS3           | ← | BSS  | 0.895    |
| BSS4           | ← | BSS  | 0.793    |
| OS1            | ← | OS   | 0.823    |
| OS2            | ← | OS   | 0.957    |
| OS3            | ← | OS   | 0.943    |
| RE1            | ← | RE   | 0.741    |
| RE2            | ← | RE   | 0.651    |
| BM1            | ← | BM   | 0.753    |
| BM2            | ← | BM   | 0.848    |
| BM3            | ← | BM   | 0.614    |
| APR1           | ← | APR  | 0.812    |
| APR2           | ← | APR  | 0.896    |
| APR3           | ← | APR  | 0.899    |
| APR4           | ← | APR  | 0.551    |
| DBSA 1         | ← | DBSA | 0.901    |
| DBSA 2         | ← | DBSA | 0.914    |

**Table 5** CFA of SEM

| Index | Likelihood ratio | RMSEA | CFI   | TLI   | SRMR  | CD    |
|-------|------------------|-------|-------|-------|-------|-------|
| Value | 4916.358***      | 0.065 | 0.908 | 0.891 | 0.096 | 0.981 |

\*\*\* significant 1%

**Table 6** Main results

| Effects |   |     | Estimate | SE    | P   | Result    |
|---------|---|-----|----------|-------|-----|-----------|
| DBSA    | ← | BSS | 0.953    | 0.037 | *** | Supported |
| DBSA    | ← | OS  | 0.214    | 0.081 | *** | Supported |
| DBSA    | ← | RE  | 0.842    | 0.041 | *** | Supported |
| DBSA    | ← | BM  | 0.294    | 0.049 | *** | Supported |
| DBSA    | ← | APR | 0.784    | 0.044 | *** | Supported |

\*\*\* significant 1%

## 5 Conclusion

### 5.1 Conclusion on the Result

The research concentrates on the factors affecting the adoption of digital banking services by Vietnamese consumers during the Covid-19 epidemic basing on the theories of consumer behavior. The hypotheses are established basing on the references from previous researches with the goal of helping Vietnamese banks better understand the influence of Covid-19 on Vietnamese consumption habit on a special product such as digital banking service. Hence, Vietnamese banks can prepare more proactive plans to boost up their digital banking services in the future. According to the results shown in the research equation, the determinants employed are valid and reliable, and the model structure established by the researchers is also considered appropriate. The findings show that there is a significant change in the habit of Vietnamese consumers toward digital banking service during the Covid-19 time. Owing to the threat of Covid-19 infection when using banking services directly, more than half of the surveyed people chose to go to bank offices less than before the pandemic. Therefore, Covid-19 pandemic can be considered as the reason to the rise of digital banking services in Vietnam recently. Since the end of 2019, the spreading of Covid-19 and its affection on worldwide economy have resulted in many studies in many sectors, including finance and business (see Berry et al. 2020; Pham et al. 2020). And this study contributes a positive side of corona virus disaster in Vietnam while digital banking services are encouraged to develop and the digitalization transformation in banking industry has been on the right way as the objectives to fintech issued by Vietnamese Government, such as compliance, cashless payment, financial inclusion and green credit (Prime Minister of Vietnam, 2018).

## 5.2 Limitation and Future Research

It is undeniable that this article has not fully exploited all problem relating to the topic. Firstly, the moderator variable studied in this paper only reflects around the emerging situation of Vietnam in 2021 when the fourth wave of Covid-19 pandemic ruined the success of Vietnamese government on preventing its spreading across our country. Therefore, several other potential moderator variables have been temporarily missed, such as trust that Alalwan et al. (2017) mentioned before. Secondly, adoption of digital banking service is also affected by age and gender and education, our study does not focus on these factors, only concentrating on the effects of the Covid-19 pandemic. Finally, the survey in this paper is only conducted in Vietnam. Hence, in the future, other scholars should survey across countries to compare differences in digital banking service adoption of different economies.

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# To Tax or not to Tax Sin Goods: That's the Question for Emerging Economies



James Manuel Pérez-Morón 

**Abstract** In times of crisis and budgetary pressures, world governments (specially from emerging economies) look more decisively for alternative sources of income generation. One such alternative is the so-called “sin taxes”. Many factors affect individual attitudes toward “legal vices” such as smoking, alcohol, gambling, plastic consumption, or consumption of beef, with religion having the greatest impact. Taxing the consumption of products or activities that pose a threat to the health of people and that cause damage to the environment has resulted in a lucrative, controversial strategy with variable results in the governments that have implemented it. This paper aims to use Scopus and Web of Science to systematically contrast how developed economies have implemented such types of taxes, which challenges those countries have faced and which lessons they can share with under developed countries. In the same way, this paper will present how, sometimes, taxes on sins do not discourage unhealthy behaviors nor are they a good way to increase government revenues.

**Keywords** Taxes · Sin taxes · Vice taxes · Excise taxes

## 1 Introduction

Excise taxes are intended to discourage consumption of the specific taxed goods, thereby preventing some potential customers from contributing to pollution, traffic congestion, injury, and poor health” (Cheng and Chu, 2018; Hines 2007; Onagan et al. 2019) and are good for the state by helping finance social services and programs to raise the birth rate (Cohen et al. 2017; Oxman et al. 2010).

Now this is a subject that encompasses several disciplines, among these there's one that has profound impact: religion. Many factors affect an individual's attitudes toward the legal vices of smoking, drinking, and gambling, but religion is probably the most important. Attitudes toward the use of alcohol and tobacco as well as toward

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J. M. Pérez-Morón (✉)

Escuela de Negocios, Universidad Tecnológica de Bolívar., Campus Tecnológico: Parque Industrial y Tecnológico Carlos Vélez-Pombo., Cartagena de Indias, Colombia  
e-mail: [jperez@utb.edu.co](mailto:jperez@utb.edu.co)

gambling are of major concern to certain churches in the United States. (Fairbanks 1977; Hertzke 1988; Hutcheson and Taylor 1973; Miller 1958; Meyer 1960).

Minor betting games such as bingo have a long tradition in the Catholic Church. Drinking in moderation has been accepted, though perhaps more for ethnic reasons than religious ones. Catholic immigrants, in addition, are part of a liberal, urban coalition that has traditionally been tolerant of individual actions that do not directly affect others (Monroe 1975). States with a large Catholic population should, therefore, have lower sin taxes and be more likely to support gambling (Fairbanks 1977).

Law and its representatives have a crucial role as well. Elected officials want to be reelected, so they try to satisfy the demands of their voters. We assume legislators will act as if various groups monitored their behavior. Even though legislators consider group pressures in making decisions, the interests of the legislators are not irrelevant to public policy decisions. (Kingdon 1973).

## 2 Methodology

We include the following databases and aggregator sites: Web of Science, Scopus, Springer Link, Taylor and Francis, Emerald and Wiley, Academic Search Complete, Business Source Complete, J- Stor and Science Direct. We first obtained 131 articles and citations for relevance using a snowballing technique. Journals published in Scopus and WOS were included with the following subject areas: 1) Economics, Econometrics and Finance (34 articles), 2) Business, Management and Accounting (14 articles) & 3) Social Sciences (43 articles) for a total of 91 papers. Articles and studies were excluded from this review if they were focused on areas such as: 1) Medicine, 2) Arts and Humanities, 3) Engineering.

This paper uses the “Six W’s” literature review method of Callahan (2014, pp. 272–273) for a better structure of the review:

|   |
|---|
| 1. <i>¿What do we know about sin, vice or excise taxes?</i> Section I named “Introduction” provides an answer on how this has been studied by multiple authors.   |
| 2. <i>¿Why should we know about sin taxes?</i> Section III provides a review on sin taxes levied on multiple parts of the world   |
| 3. <i>¿Where are the latest researches on sin taxes?</i> Section II offers an overview of the methodology used, the journal selections from Scopus & WOS  |
| 4. <i>¿How can this paper contribute to fill gaps in the literature?</i> Section III outlines challenges faced by different economies while levying sin goods. It also shed light on do’s and don’ts for future economies before imposing those types of taxes. |
| 5.  |
| 6. This paper uses snowballing selection to identify relevant literature from the following databases and aggregator sites: Web of Science, Scopus, Springer Link, Taylor and Francis and Emerald   |
| 7. <i>¿Who conducted the search of data?</i> All authors conducted the search of data   |
| 8. <i>¿When were the data collected?</i> The data search time frame was originally from 2000 up to date. However, some papers from the 19 <sup>th</sup> century were cited due to importance.   |

Still, the information available for sin taxes is quite generic and the group of components that it has have something in common. They all contaminate our beings and environments. These taxes are the focus of many multidisciplinary studies and can be measured with a priori unrelated standards. That's why there are some studies about levies on plastics that contain info about cigars, alcohol, leisure and any name that can be considered a sin. If carried out effectively, a levy on plastic bags should lead to the desired environmental improvement, that is, reduction in waste generation and littering (Dikgang 2010; Haavio and Kotakorpi 2016; Hoffer et al. 2017).

Of course, it's not just a puritanical desire to encourage people to live better lives that underlie the expansion of sin taxes. Clearly, the pressing budgetary needs of governments at all levels are driving a desperate search for revenue" (Baxandall 2003). The purpose of the sin tax is to change consumers' behaviors and to lead to a situation in which every consumer pays their way. "For the plastic-bag legislation to achieve its intended aim, consumer behavior has to be modified in the long run" (Dikgang 2010). For Cheng and Chu (2017) sin goods usually involve negative externalities, such as alcohol-related violence and passive smoking.

This type of taxes is easy to impose for the next reason: the average citizen is probably unconcerned about sin tax rates. Citizens generally do not want to pay higher taxes, but certain taxes are less obvious than others, a phenomenon known as the fiscal illusion (Lewis 1980).

Which is correlated to the next finding in South Africa with a study of consumers: a survey of consumer attitudes towards plastic bags (Ryan and Rice 1996) found that 82% of respondents viewed an environmental levy on bags positively. But one thing is what consumers wish or say, and another is what can actually be accomplished through legislation.

There are some items in state economy that can't be modified abruptly. For example, the evidence surveyed in Auerbach and Hines (2002), suggests that the average efficiency cost associated with raising one dollar of government revenue with commonly used U.S. tax instruments may be as high as 75 cents or more. So, the social welfare is very affected by these taxes. There are several jobs and factories that can't just be erased by these taxes.

This means that the decisions governments make regarding to these taxes have to aim (at least) the maintenance of the jobs that depend on plastics. Or not to fire that many people and the ones who get fired might get instructed for new jobs in recycling. It's about a shift in culture. And quite a mess in terms of consumption, civic culture and economy.

### 3 Theoretical Development

For Sumner (1891), sin taxes are no novelty. New York had taxes on wine and beer as early as 1650. Excise taxes were used most heavily by the Middle Atlantic and New England colonies, though almost all colonies taxed liquor production" (Ely 1888).

But it wasn't successful every time, that's the reason why "historically, efforts to abolish smoking and drinking ended in large part because they prevented governments from taxing those activities and imposed additional costs in the form of law enforcement and incarceration" (Bartlett 2010).

The industry of sin historically has had high revenues, but at what cost? The costs of protecting the environment from the pollution; animals and people from smokers; people from drunk drivers; animals, plants, environment and people from oil and other pollutants are high as well.

Because these sins kill many people in America (and the whole world) every year. Cigars were -maybe still are- part of the taxes focus of the Government because of its deathly nature. For Tate (1999), during the 1890s and the early part of the twentieth century, there was a powerful national campaign to abolish smoking that was no less intense than the drive for prohibition.

Among the earliest federal taxes were those on alcohol, tobacco, and playing cards, and they remained mainstays of the federal revenue system until the creation of the corporate and individual income taxes in 1909 and 1913, respectively. In 1900, 50 percent of all federal revenue came from taxing alcohol, tobacco (Cassandra 1999), and playing cards; the rest mostly came from customs duties (Bartlett 2010).

Taxes on tobacco (see the contribution of Goodchild and Zheng 201; Riahi et al. 2018), alcohol and cigarettes (see the work of Schafferer et al. 2018 for a complete analysis of cigarette excise tax in 36 European countries) were built into the price of these products; taxes on gambling could not be perceived as a tax at all but as the purchase price of fun and excitement (Meier 1987).

Over the years, the federal government has had special taxes on carriages, refined sugar, (Bascañan and Cuadrado 2017) watches, yachts, billiard tables, gold and silver plate, furs, jewelry, electrical appliances, luggage, phonographs and recordings, cameras and film, and many other items (Talley and Zimmerman 1999).

Recently, there have been multiple efforts to expand sin taxes to include other activities that are thought to be socially harmful—or perhaps just not socially favored. These include taxing sugary drinks, strip clubs, fast food, firearms, pornography, escort services, cosmetic surgery, plastic shopping bags, tanning salons, and many others.

In regards to health taxes in United States of America Wright et al. (2017) state that if the primary policy goal of a health tax is to reduce consumption of unhealthy products, then current evidence supports the implementation of taxes that increase the price of products by 20% or more. However, where taxes are effective in changing health behaviors, the predictability of the revenue stream is reduced.

Gruber and Kószegi (2001) used a "rational addiction" model to quantify the optimal taxation on cigarettes. O'Donoghue and Rabin (2003, 2006) demonstrated that a (positive) sin tax accomplished the goals of redistribution. Yaniv et al. (2009) addressed the obesity problem. They found that a tax on junk foods would unambiguously reduce obesity, while a "thin subsidy" for healthy foods may lead to an increase in obesity.

Cohen et al. (2017) found that in USA caloric sweetened beverage taxes failed to lower consumption, to, minimize the black market and to generate revenues.



Drewnowski (2010) for instance found solid evidence in Mexico of a decrease of purchase of taxed beverages with households at the lowest socioeconomic level had the largest decreases in purchases of taxed beverages in the period of time studied.

Lorenzi (2017) developed an argument for linking carbon emissions with tariffs, through a tax on goods entering a country based on the method of transport and distance traveled, rather than based on the country of origin or category of the product. However, we must state that he doesn't go any deeper on how to effectively return the taxes to the people via dividends on any of his articles Lorenzi (2004a, 2004b).

According to Williamson (2003), plastic bags were first introduced in 1970's and gained an increasing popularity amongst consumers and retailers and are available in huge numbers and varieties across the world. Spokas (2007) estimates that around 500 billion plastic bags are used every year worldwide.

According to the United Nations Environment Programme-UNEP (2005), this widespread utilization is attributed to their cheapness and convenience to use and the vast majority of these bags are discarded as wastes usually after a single use. It is also believed that after their entry into environment, plastic bags can persist up to 1000 years without being decomposed by sun light and/or microorganisms.

Plastics are a serious threat to the balance of earth and sea ecosystems globally speaking. Along with sugar, tobacco, alcohol, gambling, drugs and more, they form a group of elements considered especially dangerous for society. They are known as the sin industry. Sin industry is necessary for job creation and the maintenance of a system that a lot of people depend on.

For Ritch et al. (2009), municipalities enacted bans on plastic bags since they became "emblematic of a perceived throwaway consumer culture". But it's not just about educating people and trying to teach them a lesson, it's an environmental fact. Most plastics do not biodegrade. Instead, they slowly break down into smaller fragments known as microplastics.

Studies suggest that plastic bags and containers made of expanded polystyrene foam (commonly referred to as "Styrofoam") can take up to thousands of years to decompose, contaminating soil and water" (UNEP 2018). And what's more, this is not new. The world is just trying to react to something it has known for centuries and from first hand. For Convery et al (2007), Ireland is the only country with a plastic shopping bag levy paid directly by consumers.

Nevertheless, South Africa currently has a proposal to introduce a similar levy. For Environment Australia (2002), Denmark and Italy have indirect taxes which apply to plastic shopping bags, which are absorbed into the overall costs of products to consumers. For Environment Australia (2002), Bangladesh, Taiwan and parts of India are currently introducing bans on plastic bag manufacture and distribution. The African countries of Eritrea, Zanzibar, and Somaliland have banned plastic bags too.

Plastic shopping bags are widely used for transporting a range of small consumer goods, and in some regions, also serve secondary roles for conveying drinking water (Simpson 2007). However, the high pollution degree they bring is reaching historical levels for the modern era and along with other pollutants, they are taking planet earth to a scenario where climate change, diseases, and extinct species is unstoppable. The

drivers behind the plastic one-use bag ban laws are twofold. The first is the need to reduce litter and the skyrocketing costs of its clean-up. The second driver of bag bans is a desire to protect wildlife, especially that found in the ocean and other waterways.

For animals such as seals, sea otters, and turtles, as well as birds and fish, plastic bags have caused death from both entanglement (which causes strangulation) and digestive complications (ingesting plastic bags or even the partial breakdown of their components can clog digestive tracts) (Kish 2018). Water trapped in the bags also provides an ideal breeding ground for mosquitoes, raising the risk of malaria transmission (Cawthorne 2007).

Cases from Africa (South Africa and Botswana), Ireland and Australia are the ones who have the most impact on current society. Hence here is some digging into those cases. “In September 2002, the South African government, representatives of labour and of industry, signed a memorandum of agreement concerning use of disposable polythene shopping bags” (Dikgang 2010).

Minimum thickness rules (i.e., a partial ban) exist in South Africa (which also applied a tax to the thicker non-banned bags) in an attempt to reduce the use of the most-disposable thin bags (UNEP 2005). Logically with this measure came the obvious results and “during the first few months plastic bag manufacturers experienced a ‘dramatic’ 80% reduction in sales”.

In this respect, the chip shift must be integrated gradually into society, but it needs to start previously so that the population is not that disoriented. Some retailers, predominantly in the poorer sector where there was a demand for strong bags to carry goods long distances, already used or sold alternative thicker bags. (Moharam and Ali 2014).

But maybe the most famous case is the one with Ireland for two reasons: first, within the United Kingdom, legislation was introduced much earlier than in the United States, through the Climate Change Act of 2008 and its later amendment (The UK government 2008); and second, after the imposition of the tax, “the use of plastic bags dropped by 90%” (Convery et al. 2007). Results that were considered historical. A negative result from the bans was that paper bag usage as a share of carrying options from stores increased from 3 per cent to 16 per cent (Equinox Center 2013).

To have a wider overview of the history with taxing sinful consumption in USA sees the contribution of (Thom 2017), in United Kingdom and France (Bogenschneider 2017) in Finland (Haavio and Kotakorpi 2016) in Norway (Aasness and Nygård 2013).

In Colombia with Law 1607 of 2012 and regulated by the Decree 0803 of 2013 the Consumption National Tax is created, effective January 1, 2013. It is an indirect tax of monophasic character which falls exclusively on the production or distribution process and ought to be paid by the user of the service or final consumer of the product, nor the producer or importer. Since July 2017 the tax on plastic consumption started to be levied and as of quarter 1 2018, the local revenue service has collected approximately \$3.25 US million dollars and Colombian people have used 688'628.867 plastic bags which represents a 30% reduction on their consumption.

For Söderholm (2006), there are several phases of the supply chain where levies can be applied. “Taxes can also be applied at the beginning of the chain (i.e. on natural resources), but such taxes appear to be less effective in terms of promoting recycling” (see e.g. But the results are not usually the same, and there are some variables that need to be considered. The elasticity of the good and the customs of the population, for example, are very important.

Plastics need to be considered more seriously than it’s been through years. With plastics come other matters that shouldn’t be forgotten to the correct continuation of this writing. Here’s where shows up a term like circular economy (CE), which is the correct usage of all the raw materials that earth puts at our disposal and recycling them so that there is the least quantity of waste available.

Recycling and circular economy are synonyms (somehow). Recycling and green economy are widely assumed to be environmentally beneficial (Craighill and Powell, 1996). Although it’s not only environmental matter, it’s moralist. Recycling is generally considered to be an important strategy for alleviating the pressures of society on the environment (Van Beukering 2014). For Ghisellini (2015) Circular Economy has most often been considered only as an approach to more appropriate waste management.

Recycling encompasses plastics, glasses, papers, and a long list of goods that can be reused for decades. It has some quite good benefits for both us and the planet. In 1999, Sterner and Bartelings stated that Consumers may be interested in waste management for other reasons than purely money savings on their bills.

Waste management is a synonym for waste hierarchy, which “is a preferential order of waste treatment options that aims to reduce environmental impacts by prioritizing prevention, reuse, recycling, and recovery over landfill” (Hultman and Corvellec 2012).

As expected, developed countries are the ones on the lead on this matter. It is undeniable that the waste hierarchy has had its influence, since it has enjoyed wide support in most developed countries as a guide for waste management (Dijkgraaf and Vollebergh 2004). An appropriate numerical example might be this one: “among all countries, Germany has the highest share of recycling of municipal solid waste (46%)” (Organization for economic co-operation and development-OECD 2013). Climate change happens mainly for misuse of resources. Therefore, climate change is an important impact category related to waste management.

## 4 Conclusions

Sin taxes can help to find and to fight addictions, but they will not eliminate addictions. And if the behavior is so prohibitively destructive – to the person or to society – the behavior needs to be prohibited, e.g., murder, not simply taxed, e.g., traffic fines for excessive speed.

Although the studies and articles reviewed for this paper are from the four corners of the world, culturally and geographically distant, they do offer an outlook and

provide valuable lessons for the emerging countries that consider and plan to levy sin taxes. Whether the government supports the sin industries it needs to stop, it needs to subsidize food that is beneficial for their population and also consider levying taxes not only on the poor people but also on the producers. There is evidence to back up the implementation of sin taxes since it helped to decrease the consumption of a specific goods therefore a decrease on obesity. Also vice taxes benefited from government support, fighting tax avoidance and evasion, and having into consideration both health and non-health to set taxes.

Whether sin taxes are balanced and other taxes are cut, sin taxes could end up in economic improvement. This approach will be deeper researched in a future paper.

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# The Impact of Digital Banking on the Bank Operation and Financial Performance



Amal Abdulla Isa, Allam Hamdan, and Bahaaeddin Alareeni

**Abstract** In this chapter, the researcher explored the available literature about the two variables of the study which are digital banking as the independent variable and bank performance as the dependent variable. Previous research indicates that though digital banking is a new trend in the world of banking, it has been a significant issue and due attention is given to it since it significantly contributes to enhancing the image of the banks as well as satisfying the changing requirements of the consumers. Though bank performance can be measured by different indicators, prior research ensure that operational performance and financial performance are the most outstanding. The relationship between applying digital banking and improving bank performance has been proved in many of the studies that were reviewed while a few proved there was no relationship.

**Keywords** Digital · Operational · Financial · Performance

## 1 Introduction

Change is the main feature of our modern world, and the banking sector is no exception. As a result, several changes occur every day on the global level. Recently, Information Technology has been the major driver of all these changes.

Development in the field of technology continues to take place, and it seems that there is no end for such development. During the last few decades, the technological development has reshaped several sectors and fields in our life, and the banking sector is one of them. In fact, banks and the other financial institutions do have a crucial contribution in the modern world economy and the current national and international financial system and they are regarded as the main stimuli of economic progress

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A. A. Isa (✉)  
MBA, College of Business and Finance, Manama, Bahrain

A. Hamdan  
Ahlia University, Manama, Bahrain

B. Alareeni  
Majan University College, Muscat, Oman

nowadays. Besides, Banks remarkably contributes to the economic development of nations because they control money supply (Abdullah et al. 2018).

The shift from traditional banking to electronic banking is seen as a significant part of the strategies that modern banks adopt for forming a convenient information technology model that is able to provide the bank customers with an efficient customer service. In this context, this technological development has led a big number of the banks' customers to go online totally. Besides, instead of doing the daily bank business, the existing physical bank branches have been turned into sales points and personal advisory offices. Recently, the Internet has turned to be an effective communication means used to reach all people and especially consumers all over the world at the suitable timing and location of the customer. In the context of banking, the invention of Internet with its advanced technology has transformed the way the banks design, communicate and deliver their products and services to their consumers. In other words, internet banking has remarkably influenced the bank performance (Accenture 2015).

The current study mainly aims to evaluate the effect of digital banking on the performance of a bank. In this section, the author starts with offering a comprehensive analysis of bank performance and investigating the bank performance definition, determinants, operational performance, financial performance and the models and theories of bank performance. After that, the author discusses digital banking definition, development, advantages and disadvantages, and finally the models and theories of digital banking. Eventually, the author evaluates the effect of digital banking on the performance of banks.

## **2 Bank Performance**

The evaluation of Bank performance has gained great attention in the recent years. This great attention may be attributed to the tremendous international financial crisis and the Euro-zone crises that have led to the horrible failure of the international banking systems. (Morufu 2016a, 2016b) argues that he crises of the collapse of some of the strongest world banks including the Washington Mutual Bank and the Lehman Brothers have remarkably shed light on the inconvenience of bank evaluation systems in predicting, detecting and overcoming the inadequate bank financial practices (Morufu 2016a, 2016b).

### ***2.1 Definition of Bank Performance***

The concept 'performance' typically refers to carrying into execution or achievement, or the performance of an undertaking of a duty, or achieving specific activities. In other words, the term performance could be defined as 'using the available resources for the achievement of the organization's (the bank's) objectives within the agreed

time and with minimal costs (Isanzu 2017). Besides, the concept bank performance could be defined as ‘the adoption of a set of indicators that could work as indicative of the bank’s current status and the extent of its ability to achieve the desired objective. Moreover, (Hajer and Anis 2016) refer to the term ‘Bank performance’ as ‘the capacity to generate sustainable profitability. This paper also assures that for analyzing the performance of a bank, it is advisable to employ both the return on assets and the return on equity as the main variables for measuring the performance of banks (Hajer and Anis 2016).

### **2.1.1 Determinants of Bank Performance**

In fact, the banking sector is an important element that plays a remarkable role in enhancing the modern economy of any country, and this sector’s health is of crucial importance for the whole world economy. Therefore, for ensuring a healthy financial system as well as an efficient economy, the performance of banks have to be carefully measured and analyzed. In other simple words, it is vital for the banking sector to assess the individual performance of banks for determining their contribution to business development. Moreover, many other causes could urge business experts, researchers and regulators to evaluate the performance of banks. These causes could include measuring the bank’s assets quality; managing the banks’ quality and efficiency; determining the banks’ operational results and their overall financial condition; ascertaining the banks’ liquidity, capital adequacy, earning quality; achieving the banks’ objectives; and finally evaluating the level of bank services. Moreover, it is argued that the measurement of bank performance is a method that guides the action and behavior of organization’s (bank’s) actors, and motivates them to perform more efficiently. Besides, measurement is the first step to improvement as a bank cannot achieve improvement unless there exists a method for getting feedback on its performance (Pereira and Filipe 2018).

In fact, there has been an increasing interest from the side of researchers to study the determinants of the performance of banks and its proficiency. As a direct result for such increasing interest, several research papers have attempted to identify some specific factors that could determine the bank performance. These papers have not agreed on specific determinants of bank performance. Some of these studies confirm that the analysis of bank performance typically involves collecting formal and informal data for helping the bank’s customers and sponsors in defining and achieving their objectives. It is also argued that banks have to provide clear evidence of their financial flows and their credit operations as these could remarkably influence the development and growth of the national economy. However, measuring and assessing the performance of banks is not an easy task as a big number of the bank’s products and services could be described as intangible and could be hardly measured (Borges and Tavares 2020).

For example, the study of (Hughes and Mester 2013) confirms that the commercial banking’s distinguished capital structure of funding production typically affects the different aspects of banking performance. The paper of Hughes and Mester (2013)



also assures that this factor could form and affect the comparative advantage that a bank could own in providing efficient and distinguished financial products and services to its customers. Besides, Hughes and Mester (2013) also reveals the bank's ability to diversify its credit and liquidity risk could be extremely significant in reducing the probability of bank runs and in determining the bank's performance. In addition, the study of (Wadesango et al. 2017) reveals that some crucial aspects of banking could significantly affect the bank's choice of risk vs. expected return, which, in turn, greatly influences the performance of a bank. This paper also assures that banks naturally own a desire to reduce risk for protecting the valuable charter from episodes of financial distress; this natural desire contrasts some technical incentives that are related to the size of a bank. Finally, this paper also concludes that for evaluating the performance of banks and its relationship to size, it is crucial to untangle cost and profit from decisions about risk versus expected return. This paper eventually recommends that both cost and profit are functions of effective risk-taking (Wadesango et al. 2017).

### 2.1.2 Operational Performance

Several researchers argue that despite the remarkable success and growth in the banking and financial industry both in terms of the amount of money managed by their diversity activities and in terms of the number of such institutions; it still has a big number of challenges. Such challenges require research that is more intensive and great efforts from the side of these financial institutions for enhancing the quality of their products, services, and diversity. Besides, these institutions are in bad need to keep pace with the rapid developments taking place in the modern business world. Moreover, they have to find new method for improving their services. Therefore, some researchers assure that for managers and policy makers to recognize the effective operational bank performance and struggle for accomplishing it, there exists a major question that needs an answer; this question is "What drives performance?" In their several attempts to answer this crucial question, business experts and researchers have given the operational details of the bank performance special interest (Fadun and Oye 2020; Khoury et al. 2021; Hamdan et al. 2017; Alareeni and Hamdan 2020).

In fact, several research papers have attempted to examine the operational performance of financial institutions, especially banks. The main reason for this could be the fact that enhancing the operating efficiency of banks is of special importance for both policy makers and managers as well. In fact, the main tasks of the policy makers are to evaluate the impacts of market structure on performance and to safeguard the stability of the financial system, whereas the bank's managers mainly aim to improve the performance of their financial institutions. Several research papers that have tackled bank performance have adopted some well-known measures for assessing the operational performance of commercial banks. These well-known measures include return on total equity (ROE), and return on total assets (ROA). Besides, these well-known measures have been employed via both bank regulators and analysts for forecasting

the market structure trends, measuring the financial industry performance, and for achieving other purposes related to profitability measure (Harelimana 2017).

However, other researchers assure that despite the fact that accounting and financial ratios could be extremely significant as they provide us with relevant and important information about bank's financial performance. Besides, it could help examine the relationship among several factors related to the bank performance including revenue, number of employees, profit, investments, customer satisfaction, assets, and market value. It could also be significantly helpful in enhancing the bank productivity and efficiency. Moreover, they also assure that the profitability measurement could be an important requirement to answer this question. They also confirm that operational risk management should be given great emphasis as effective operational risk management typically leads to lower capital charge, improved regulatory compliance, improved decision making, and improved customer and staff satisfaction. However, if the operational risk management is inadequate, it could eventually lead to ineffective financial performances, and it could affect the bank's revenues in a negative manner (Almumani 2014).

### 2.1.3 Financial Performance

In fact, banking performance management has really become of increasing importance in the modern banking sector, taking into account the present banks' financial condition in today's economy. Therefore, some researchers argue that for evaluating the efficiency and health of an economy, it is essential to assess the financial performance of the banks working under the umbrella of this economy. Therefore, the financial performance of a bank could be regarded as a subjective measure of the bank's ability to employ its assets and generate high remarkable revenues. In addition, the concept 'Financial Performance' could be employed as a general measure of a bank's overall financial wellbeing over a given period. In the banking sector, both analysts and investors are interested in measuring the financial performance of a bank so as to compare similar banks across the same banking industry. They usually use various methods to evaluate the financial performance of a bank; however, all these measures have to be taken in aggregate. These measures could include total unit sales, cash flow from operations, operating income, and revenue from operations. Besides, both the investor and the analyst could seek out margin growth rates or any declining debt via looking deeper into the bank's financial statements (Levy et al. 2019).

Several research papers reveal that the sound operational performance of banks does have a significant relationship to improving the bank's financial performance. For example, (Oruko and Tibbs 2020) argue that adopting an ineffective operational risk management in a bank could eventually lead to horrible bank financial performance. On the other hand, this study assure that the effective practices of operational risk management could have a positive impact on enhancing the financial performance of a bank. Eventually, this study recommends that it is advisable for the management of banks to employ effective methods and resources for understanding

operational risk and for ensuring effective operational risk management. Eventually, this paper recommends that employing such methods and resources could finally lead to more enhanced financial bank performance (Oruko and Tibbs 2020). Besides, the study of (Adam 2014) reveals that the positive behavior of the bank's financial position and some of its financial factors could significantly and positively affect this bank's financial performance. In addition, this paper assures that the general financial performance of a bank could be remarkably improved in terms of profitability ratios, assets quality ratios, liquidity ratios, and credit performance. In addition, the research paper of Bain and Company (Bain 2018) suggests a set of significant recommendations related to enhancing some of the banking operational activities that will eventually strengthens the bank's profitability and enhances its financial performance efficiency (Bain & Company Bain 2018).

## **2.2 Digital Banking**

Recently, the digital banking services have become the prominent topic of the financial industry, particularly during the Coronavirus era. In fact, because of the increasing consumer demands for benefiting from the services of digital banking, various technological advancements in financial institutions especially banks have taken place recently. Besides, the study of (Wadesango and Magaya 2020a) reveals that the banking industry is currently witnessing a huge amount of digital engagement with online deposits and mobile apps. In this era, the e-bill payments have become the norm while paying with cash has become old-fashioned. Digital banking typically refers to the process of digitization of every level of banking. Digital banking mainly depends on artificial intelligence for automating all the banking operations such as administrative tasks and data processing, the thing that in turn decreases the pressure put on the bank employees for completing their day-to-day tasks. (Wadesango and Magaya 2020b).

### **2.2.1 Definition of Digital Banking**

Some people could simply regard digital banking as simply online banking or mobile banking. Those people might see digital banking as an add-on to the traditional and traditional services of banks. Besides, some people may be confused between online banking and digital Banking. Other people see that there are other synonyms for digital banking including e-banking, virtual banking, and internet banking. Unfortunately, all these opinions are too narrow focused as they failed to see the big picture. In fact, the term 'Digital Banking' is broader than the term 'Online Banking'. While online banking mainly focuses on digitizing the basic banking aspects such as money transfers, remote deposits, and bill pay, digital banking typically includes digitizing all the activities and programs performed by the different financial institutions, especially banks, and their customers. In other words, digital banking is more than just

an online or mobile platform as it includes middleware solutions, which is a software that bridges operating systems or databases with other applications. In addition, (Stephen and Sandeep 2015) argue that digital banking involves web-based services and high levels of process automation. Besides, this paper assures that digital banking includes APIs, which enables cross-institutional service composition for delivering the different banking products. Moreover, digital banking provides the ability for the bank customers to execute their transactions and access all their financial data via using the desktop, mobile and ATM services (Stephen and Sandeep 2015).

(Bashuri 2016) defines the concept 'Digital Banking' as 'the provision of banking services such as funds transfer, balance inquiry, etc. through smart devices over the internet like desktop, laptop, smartphones, etc. (Bashuri 2016) also assures that the digital banking services could be expanded using the Open API's. In addition, (Bashuri 2016) confirms that digital banking is extremely helpful and beneficial as it enables the bank's customers to manage their financial portfolio, check their credit score, and get a preapproved loan. According to (Bashuri 2016), the term 'Digital Banking' refers to 'the digitization of the traditional banking activities, programs and services that were only available to customers inside the bank branch. According to this definition, digital banking includes several activities such as applying for financial products; getting account services; checking saving account management; conducting money deposits withdrawals; conducting money deposits transfers, making bill pay, and enjoying loan management (Bashuri 2016).

In addition, the concept 'Digital Banking' could be defined as 'the application of technology in the banking sector to ensure seamless end-to-end processing of banking operations and transactions. Besides, digital banking ensures maximum utility to the client in terms of usefulness, cost, and availability. According to (Chikoko and Munongo 2015), digital banking refers to the use of the internet, mobile phones, and the other electronic mediums as a delivery channel for the services of banks that include the traditional services like balance enquiry, bills payment, transfer of funds to other accounts, and statement printing. It also includes the modern banking services like payment without necessarily visiting a bank, and electronic bill presentment. This definition implies that digital banking is remarkably beneficial for the bank as it enhances the banking services, reduces the operating costs, and achieves zero errors in presenting the banking services (Chikoko and Munongo 2015).

### 2.2.2 Conclusion

The remarkable increase in the amount of losses that several international banks have recently borne mainly result from their inadequate operational and financial practices. These tremendous losses have focused increasing interest on the management and regulators of banks. In fact, there are several reasons that lead to the importance of evaluating the performance of banks. These reasons include managing the banks' quality and efficiency; measuring the bank's assets quality; ascertaining the banks' earning quality; determining the banks' operational results and their financial condition; and achieving the banks' objectives. In fact, several studies attempted

to analyze banking performance; however, measuring the bank's performance is a difficult task as most of the bank's services and products are to somehow intangible. Some of these studies have considered both the return on assets and the return on equity as the main variables that could be employed for measuring the performance of a bank. In addition, there are various models and theories used for evaluating bank performance. The CAMELS Model and Data Envelopment Analysis (DEA) are seen as two of the most well-known models of measuring bank performance.

Recently, the concept of 'Digital Banking' has become a crucial concept in the banking sector as well as the whole economy. In fact, several banks have understood that digital banking could provide the banks with several advantages that include enduring low costs, ensuring the easiness of conducting transactions, providing higher security, increasing the speed of cash movement, accomplishing high return, having less risk of manipulation, and enhancing the reliability of cash flows. Besides, digital banking is featured with the availability of 24-hour service and the remarkable speed of these transactions. All these advantages and others that are related to adopting digital banking typically enhance the bank performance efficiency. However, some researchers argue that digital banking has some disadvantages including increasing the gap that arises between the client and the bank, the possibility of the bank's exposure to fraud, the potentiality of the occurrence of technical errors, the potentiality of penetrating accounts, and the possibility of harming the national economy. Moreover, some researchers argue that the most famous models and theories related to digital banking include the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB). Eventually, there have been several research studies that attempted to investigate the connection between digital banking and its impact on the bank performance; however, many of these studies have provided different and ambiguous outcomes. While some of the studies assure that digital banking does have significant positive impacts on enhancing the bank performance, other studies reveal that digital banking is negatively correlated to the bank performance.

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# The Determinants of Selecting Public Practice Accountants as Business Advisors Among Small Medium Enterprises: A Conceptual Framework



Emy Filzah Binti Zulkifli and Mohd Nor Hakimin Bin Yusoff

**Abstract** Public practice accountants (PPA) play a significant role in aiding small and medium-sized enterprises (SMEs) to sustain on business performance. Previous literatures has discovered that the PPA is the first choice among SMEs to seek advice for help them to achieve their business objectives. This paper purpose is to extend a conceptual framework based on the Decomposed Theory of Planned Behavior (DTPB) to a new construct that has never been tested before. A conceptual framework was developed to highlight the relationship between SMEs in selecting PPA as business advisors (BA). Furthermore, this research will implements DTPB from the owner-manager's (OM) perspective with identify the attitude, subjective norms and perceived behavioral control factors affects the intention-behavior on selecting public practice accountants' advisory services. Finally, this paper contribute a specific and theoretically grounded prediction of how antecedents variables influences selecting advice services provided by PPA as an added value and the most beneficial resource.

**Keywords** Business advisors · Decomposed theory of planned behavior · Malaysia · Public practice accountants · SMEs

## 1 Introduction

The government has framed many policies and development plans to assist SMEs ahead of the Twelfth Malaysia Plan (2021–2025) (Planning and Unit.: Twelfth Malaysia Plan. 2021), the Third Industrial Master Plan (IMP3) (Ministry of International Trade and Industry 2006) and the latest SME Master Plan (2012–2020) to accelerate SME growth and further help Malaysia achieve the status of the high-income country by 2020 (Wu and Zumbo 2008). Thus, with the significant role of

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E. F. B. Zulkifli (✉) · M. N. H. B. Yusoff  
Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan (UMK), Kota Bharu,  
Kelantan, Malaysia  
e-mail: [a20d0143f@siswa.umk.edu.my](mailto:a20d0143f@siswa.umk.edu.my)

M. N. H. B. Yusoff  
e-mail: [hakimin@umk.edu.my](mailto:hakimin@umk.edu.my)



SMEs in economic growth, the government and the private sector have provided various forms of business support consisting of financial and non-financial support. These business support services are an indicator of the commitment of all parties to ensure that SMEs remain sustainable. The dynamic business environment, especially the current situation where the world faces the Covid-19 pandemic, makes the challenge even greater for SMEs, especially for micro-sized SMEs.

Most SMEs operate with limited capital and lack of managerial skills. This has reduced their level of efficiency in carrying out daily activities. These weaknesses force SMEs to seek external support to make full use of their potential (Caniëls and Romijn 2005). Expert assistance through business advisory services is essential to stimulate business growth, increase capacity and market competitiveness. Advisory services offered by PPA through accounting firms are among the most popular among SMEs (Devi and Samujh 2010). Accounting firms offer advisory and consulting services in the preparation of financial statements, tax compliance and other strategic management functions. However, the study found that most SMEs use the services of professional accountants for routine tasks such as bookkeeping preparation and statutory compliance tasks such as preparation of audited accounts and taxation only.

A smaller number of SMEs used PPA advisory services in formulating business strategies and formulating financial management plans. This phenomenon should not happen because SME entrepreneurs need professional intervention, such as PPA, especially in strategic and financial management, to compensate for their management weaknesses. Therefore, based on the DTPB, this study will analyze the influences of attitudes, subjective norms and perceived behavioral control towards intention to use BA services offered by PPA through accounting firms.

Overall, few similar studies were conducted in various countries such as the United States, Canada, Australia, United Kingdom, Belgium and New Zealand and emerged with different results on the role of accountants as providers of advisory services to accountants. Looking at the environment of SMEs in using BA services, there are still fewer studies that use TBP as the basis of their research. This is evidenced in research by Carey and Tanewski (2016) regarding the role of external accountants in providing advisory services where researchers use Agency Theory. In addition, the latest study from Ganesan et al. (2018) on the importance of business advice by external accountants on the performance of SMEs reveals Knowledge-Based View Theory (KBVT).

However, no previous study has conducted research on selecting PPA as BA among SMEs. As such, this would fill the research gap by selecting DTBP and would be applied to generate new findings and insights (Miles 2017). In addition, DTPB was used to identify the attitude factors of SME owner-managers in the three East Coast of Peninsular states of Malaysia: Kelantan, Terengganu, and Pahang were answering research questions on their intention to select PPA as BA.

The rest of the paper is structured as follows: Section two reviews two theories of which provide the theoretical framework of the research. Section three provides the proposed conceptual framework of the research and develops seven hypotheses to examine factors affecting selecting of PPA. Section four clarifies literature review

for this research and section five discusses the conclusions with expectations of this paper.

The present study aims to answer the following research questions:

- RQ1: Do attitude dimensions (awareness, perceived of quality and perceived of benefits) influence the intention to select a public practice accountant as a business advisor?
- RQ2: Does the dimension of subjective norms (influence of peers and entrepreneurial association) influence the intention to select an accountant as a business advisor?
- RQ3: Do perceived behavioral control dimensions (cost of professional fees and desire to grow) influence the intention to select an accountant as a business advisor?
- RQ4: Does the intention to choose a public practice accountant influence the Behavior of selecting a public practice accountant as a business advisor?

## 2 Theoretical Development

### 2.1 Theory of Planned Behavior (TPB)

The theory of planned behavior (TPB) introduced by Ajzen (1991) is a widely used theory in the study of behavior (Crespo and Bosque 2008; Park 2011). A recent review study by Ajzen and Kruglanski (2019) showed that TPB provides a practical conceptual framework for addressing problems about social behavior. In addition, the main idea of TPB is that intention is a predictor if the behavior is under the control of desire (Ajzen 1991). Therefore, TPB is the best method to explain the intentions of SMEs in choosing an accountant as a BA. The TPB describes intentions-behavior by three antecedents: the attitude, subjective norm and perceived behavioral control. In addition, OM decision making for choosing PPA is directed by a rational evaluation of behavioral effects (Ajzen and Fishbein 1980). Attitudes towards the behavior reflect the extent to which this behavior is positively or negatively evaluated. Subjective norms or social influence is the person's perception of the expectations of reference or important groups about a specific behavior (Pavlou and Fygenon 2006). The effect of the subjective norm on behavior intention is called the compliance cause. Perceived behavioral control is an individual's perception of how easy or tough it would be to carry out the behavior (Pavlou and Fygenon 2006).

TBP is used as the basis of the theoretical framework in this study because previous studies have relied heavily on this theory to provide a clear picture to understand an individual behavior (Ajzen 2005). Therefore, it is not surprising that many researchers use this theory as the basis of the theoretical framework of their study. Although many researchers have widely adopted TBP, some researchers have suggested that these three factors may not be sufficient to explain individual intentions and actions fully

(Armitage and Conner 1999; Conner and Armitage 1998; Terry et al. 1999). Therefore, some additional constructs may be useful to upgrade into the model (Armitage and Conner 1999). However, this study uses TBP as a fundamental theory to explain the phenomenon of intention and attitude to select public practice accountants as business advisors among SMEs.

## ***2.2 Resource-based View Theory (RBV)***

Resource-based view theory (RBV) explains the ability of management practices to the internal resources of an organization through strategic and tactical planning to remain competitive. According to Barney (1991), a sustainable competitive advantage is reasonable when organizations have a human resource group, which cannot be copied by any competitors. SME owner-managers desperately need professional intervention, such as PPA especially in strategic and financial management, to compensate for their management weaknesses. Therefore, to support this study, Resource-based view theory (RBV) is used as the underpinning theory because PPA are a valuable resource to SMEs. The abilities of PPA are seen as a benefit in the organization; therefore, owner-managers should constantly evaluate their skills and competency development to ensure a more sustainable increase in competitiveness. This statement, supported by Karanja et al. (2018), states that ability is the only resource of organizations, which provides a base for sustainable competitive advantage.

## **3 The Proposed Conceptual Framework and Hypotheses Development**

### ***3.1 Decomposed Theory of Planned Behavior (DTPB)***

This study has constructed a conceptual framework based on DTPB as a starting point to develop a theoretical foundation to determine the factors of intentions-behavior on selecting PPA as business advisors among SMEs. DTPB is a combination of the Theory of Planned Behavior (TPB) and Resource-based View Theory (RBV) as an underpinning theory. Taylor and Todd (Taylor and Todd 1995) show that the DTPB model provides a better explanation than the TPB developed by Ajzen (1991), where this theory assumes that individuals are aware of the effects of their actions before making a decision on an action or behavior. The main goal of this theory is to predict and understand individual behavior. Since individual behavior is in the control of the will, the intention is seen as a major factor in determining the execution of behavior. Therefore, the DTPB model would provide a more satisfactory explanation of the intentions and attitudes in selecting PPA as business advisors among SMEs.

DTPB as recommended by Taylor and Todd (1995), has few advantages in comparison to TPB. Firstly, DTPB combines several antecedents to select accountants as BA, making precise construction of relationships. Secondly, decomposed belief structures can be implemented in different settings to overcome some of the disadvantages of traditional models (Berger et al. 1993; Mathieson 1991). Finally, integrating specific beliefs helps to identify exact factors relevant to the objective of this study. According to Taylor and Todd (1995), DTPB is more complex, combining more variables. Due to these advantages, DTPB is considered as a greater method in determining the factors of intentions-behavior on selecting PPA as business advisors among SMEs to allow all objectives to be achieved and provides answers to the research questions.

In addition, the relationship between attitudes, subjective norms, perceived behavioral control towards intentions-behaviors in selecting a PPA as a BA will be tested to determine whether the model fits the data. At the same time, to examine the direct and indirect effects on independent variables. The intermediate variables for this study could also be identified through indirect effects. Figure 1 describes the conceptual framework of intention-behavior on selecting a PPA as a BA among SMEs in Malaysia.

The following hypotheses are made:

- H1: Awareness has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*
- H2: Perceived of benefit has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*
- H3: Perceived of quality has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

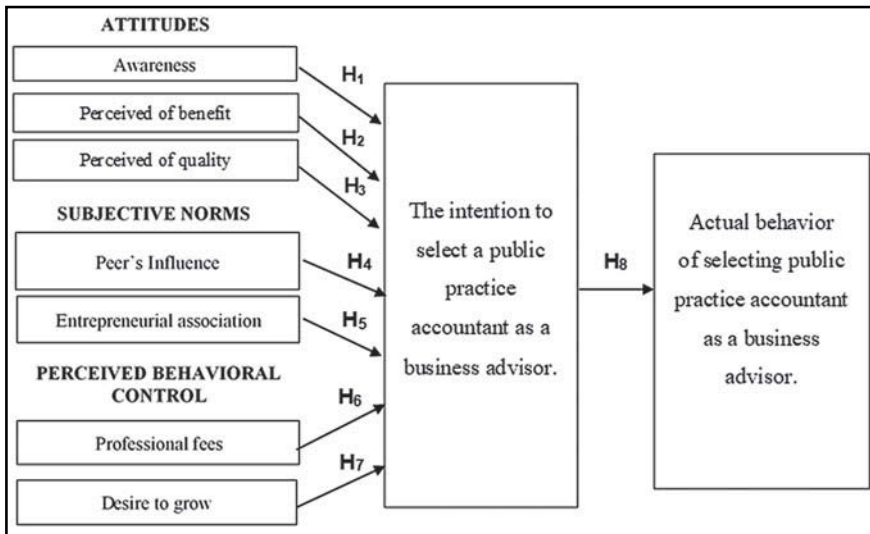


Fig. 1 The proposed conceptual framework

*H4: Peers have a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

*H5: Entrepreneurial association has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

*H6: Professional fees have a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

*H7: Desire to grow has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

*H8: Intention has a significant influence toward on selecting a public practice accountant as a business advisor by SMEs.*

## **4 Literature Review**

### **4.1 Factors Determining Intentions-Behavior on Selecting of Public Practice Accountants as Business Advisors by SMEs**

Factors determining intentions-behavior on selecting PPA as business advisors by SMEs is the main question in this research. Blackburn et al. (Blackburn et al. 2014) state that the vast majority of SMEs seek business advice from PPA. This statement was supported by research data showing that three-quarters of SME businesses have used external accountants, and 48% named their accountants the most trusted business advisors (ICAEW 2021). This illustrates that accountants have the highest position in the selection as BA among SMEs.

In the Malaysian context, the results of the (Malaysian Institute of Accountants.: Annual Report of the Council 2010) have identified 12 factors that influence SMEs in purchasing advisory services from accountants (Table 1). The strength factor in technical science is the highest value, followed by responsiveness, business needs, and competitive pricing is the fourth highest. Branding is the lowermost rated factor. This may be because SMEs are not aware of any branding activities such as advertising done by accountants.

Although there has been a lot of discussion in past literature reviews and only a few explanations on the theory, it still helps in determining the selection factors of BA services among SMEs. The findings by Blackburn and Jarvis (2021); Kamyabi and Devi 2012; Shehu et al. 2013) have identified several factors such as changes in the business environment, the importance of BA services, the personality of the OM and the relationship between accountants and SMEs (trust, efficiency and experience aspects). Moreover, another factor that drives the search for advisory services is that SMEs face large resource gaps (Carey 2015). To achieve greater performance, SMEs need resources such as knowledge and skills acquired from BA. In addition, IFAC (2016) presents other important factors that include the type of advisory services,

**Table 1** Factors influencing the purchase of advice from an accountant

| Rankings | Factors                          | (%)  |
|----------|----------------------------------|------|
| 1        | Strengths in technical science   | 75.8 |
| 2        | Responsive (easy to collaborate) | 72.4 |
| 3        | Business needs                   | 69.6 |
| 4        | Competitive price                | 67.7 |
| 5        | Punctuality                      | 65.0 |
| 6        | Skills and competencies          | 63.2 |
| 7        | Best quality service             | 61.3 |
| 8        | Trustworthiness                  | 54.8 |
| 9        | Relationships                    | 39.5 |
| 10       | Capabilities in networking       | 33.1 |
| 11       | Creative and innovative          | 28.8 |
| 12       | Branding                         | 11.2 |

Source: MIA Survey (Ong et al. 2008)

SME reputation, accountant image, manager personality and perceptions of accountant role and competence, company factors (size, debt, age, growth and available resources) and environmental factors such as economic conditions, regulation and competition.

Based on past studies, the tendency of SMEs to seek business advice from PPA is due to high debt ratios, rapid growth rates and intention to grow (Blackburn et al. 2014; Blackburn and Jarvis 2021; Spence 2014). However, several other study findings show that the above factors are not the determining factor for obtaining BA services, but they are only identified as additional determining factors. In the meantime, the development of BA services can also affect the demand for advisory services. For example, in developing countries, the number of BA among qualified accountants is minimal (Devi and Samujh 2010). The main factor is that a large number of SMEs do not seek advice from PPA due to lack of information, knowledge and poor resource management. This may be due to SMEs being less knowledgeable and open to seeking advice providers among accountants. This is supported by research from developed countries showing that the level of education, knowledge and competence of SMEs on accounting services are the main factors on BA services demand (Kamyabi and Devi 2012; Shehu et al. 2013; Padachi et al. 2012). The cost of payment for services also influences the demand for advice. The benefits of obtaining advisory services are more difficult to assess than the costs incurred. Not all SMEs can afford or are willing to pay for advisory services. Thus, the cost is a barrier for SMEs to receive business advisory (Devi and Samujh 2010). Previous research has shown that cost is a factor that hinders demand for purchasing advice in developing countries (Devi and Samujh 2010; Australia 2011; Institute of Certified Public Accountants of Singapore (ICPAS), A golden past, an empowered – ISCA 2013), rural or remote areas (Alam and Nandan 2010) and developing countries (Leong and Ng 2021).

In conclusion, SMEs are unlikely to select PPA as the most reliable source of advice for seeking business advice without taking into account aspects of their need for advice. The selection of a PPA as an advisor or consultant is crucial to ensure the success and growth of SMEs. It can directly assist in developing and implementing an effective business plan.

#### ***4.2 The Relationship Between Attitudes and Intentions Towards Behavior of Selecting a Public Practice Accountant as Business Advisors by SMEs***

In the theory of planned Behavior, attitude factors are very important to influence a person's intention to do something. According to Ajzen (2005), attitude is defined as an assessment of a person on the effects of implementing a behavior. Attitude toward behavior is the extent to which an individual has a good or bad evaluation of an interesting action (Leong and Ng 2021). Thus, an individual's evaluation of a behavior will produce two forms of belief: a good or bad outcome. Evaluation among OM on implementing a behavior will produce a sense of awareness and two forms of perception: the perception of benefits and the perception of quality. This explains that if SMEs have awareness and consider selecting PPA beneficial to the impact of implementation and quality assurance on the business environment, a certain behavior is positive. This means it is profitable, and then it will further strengthen the intention to do so. On the other hand, if the assessment is negative, it will stop their intentions.

The same belief exists in the context of behavior by SMEs. This is because the SME environment is unique, where SMEs that use BA services show high growth. The OM totally decides the act of selecting a PPA. SMEs believe that the selection of a PPA will give a progressive result on business income (positive receipts) then, of course, the appointing of a PPA is profitable. On the other hand, a negative attitude will be formed if SMEs feel that this selection is not profitable for the business. A positive attitude of SMEs encourages strong intentions, while their negative attitudes will reduce the intention to appoint PPA as their advisor. This is consistent with a research study by Carey (2015), explaining that SMEs that use BA services show enhanced performance and higher growth.

In essence, the awareness and perceptions of SMEs indicate their level of evaluation. Positive evaluations of perceptions of benefits and perceptions of quality indicate that individuals' perceptions of advisory services can provide high benefits and value, while negative evaluations indicate low benefits. Therefore, this study expects attitudes toward the selection of PPA as BA also have a relationship with behavioral intentions of choosing PPA.

Hence, based on previous findings, we expect:

*H1: Awareness has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

*H2: Perceived of benefit has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

*H3: Perceived of quality has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

### **4.3 The Relationship Between Subjective Norms and Intentions Towards Behavior of Selecting Public Practice Accountants as Business Advisors by SMEs**

The subjective norms factor refers to the perception of an individual's tendency towards others that are considered important regarding the behavior (Ajzen 2005). Evaluations made on the other's opinion will drive the behavior. Subjective norms become a construct that has a direct relationship to an individual's behavioral intentions (Ajzen and Fishbein 1980). According to Leong and Ng (2021), subjective norms are related to an individual's motivation to do those behaviors based on others' views. Therefore, the behavior is highly dependent on other people's perceptions of their behavior. If another individual's perception of behavior is positive, then it will positively encourage a person to perform that behavior. On the other hand, negative social perceptions will inhibit a person's tendency to do so. This is measured subjectively that SMEs should act with external control factors such as the influence of entrepreneurial partners and entrepreneurial associations.

In the context of SMEs behavior, it is expected that subjective norms have an influence on the behavioral intentions of OM to select PPA as business advisors. This is because interpersonal influences such as entrepreneurial peers who have close relationships and interactions can be used as a reference by SMEs. External influences such as the Entrepreneurs Association also play a role in influencing their intentions. A positive influence will strengthen the intentions of SMEs towards selecting PPA, while a negative perception will reduce their intentions.

Hence, we expect:

*H4: Peers have a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

*H5: Entrepreneurial association has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

### **4.4 The Relationship Between Perceived Behavioral Control and Intentions Towards Behavior of Selecting Public Practice Accountants as Business Advisors by SMEs**

Perceived behavioral control reflects the ability observed by the individual on a behavior (Ajzen 2005). This means that someone has full control of the behavior,



either to act or not. In addition, it relates to the individual whether it is easy or hard to perform a certain behavior (Ajzen 1991). This easy or difficult assessment from the OM usually depends on their internal and external factors such as time, desire, skills, experience, resources, money and opportunity. If the OM do not have good control over those factors, then the intention to do something will be weak. On the other hand, their intentions will increase if they have control over those factors.

Consequently, SMEs should have control over internal factors (desire to grow) related to the ability to do something else. Besides, that is an external factor related to resource constraints such as the cost of accountant fees. In line with the recommendations of the TPB, perceived behavioral control is also expected to influence directly the behavior of selecting PPA and probable to have strong intentions to choose as BA. However, OM intention become weak if control over those factors is low. This is consistent with the observation from Ajzen and Driver (1992) that highlights some situations; perceived behavioral control factors affect intention and influence behavior directly.

Henceforward, we expect:

*H6: Professional fees have a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

*H7: Desire to grow has a significant influence toward intention on selecting a public practice accountant as a business advisor by SMEs.*

#### ***4.5 The Relationship of Intentions as a Mediator Towards Behavior of Selecting a Public Practice Accountant as a Business Advisor by SMEs***

Wu and Zumbo (Wu and Zumbo 2008) described that a mediator plays dual roles in a causality relationship, in which a mediator will act as a dependent variable for the independent variable (cause), and the mediator will act as an independent variable for the dependent variable. In other words, the role of a mediator is to provide an enhanced understanding of the relationship between a dependent variable and an independent variable. Ajzen and Fishbein (Ajzen and Fishbein 1980) define intention as an individual's cognitive readiness in doing something necessary. As a result, intention is a contributing factor towards a particular direction of behavior. In addition, (Chan 2012) state that intention was individual's interest in doing or doing something in the future. So, intention is a good predictor for OM deciding to select PPA as business advisor. Previous researchers such as (Bagozzi and Warshaw 1990; Schifter and Ajzen 1985) prove that there is a positive relationship between intention and behavior. SMEs who trust PPA will appoint them as business advisors. The OM intention to select an accountant will determine what decision they need to make for selecting PPA.

In conclusion, all the situations for mediation have been justified. Thus, this study can expect the intention to select PPA to be the closest mediating variable between

attitudes, subjective norms and perceived behavioral control with the behavior of selecting public practice accountants as business advisors among SMEs. From the above views, it can be hypothesized as:

*H8: Intention has a significant influence toward on selecting a public practice accountant as a business advisor by SMEs.*

## 5 Conclusion

This study is a novelty effort to determine the intentions-behavior of selecting PPA as BA among SMEs in the East Coast of Peninsular Malaysia. To attain the objectives, this study was developed based on two (2) theories, namely Resource-Based View Theory (RBV) as an underpinning theory and Decomposed Theory of Planned Behavior (DTPB) as the main basis theory. The factors that have been identified that would influence the decision of owner-managers SMEs to seek advice are inconclusive and unclear. This study aims to fill the previous research gap that is the theoretical gap using the DTPB model, which has never been used in any previous study in identifying the factors that determine SMEs to use the services of accountant public practice services as BA. DTPB framework are contributed by three constructs, namely, attitudes (awareness, perception of benefits and perception of quality), subjective norms (influence of entrepreneurial peers and association), and perceived behavioral control (cost of accountant fees and the desire to grow) as an independent variable. In addition, intention to select accountants as business advisors considering them as a mediating variable, and actual behavior on selecting PPA as business advisors as a dependent variable.

The end result of this study could also be determinant towards making more consistent decisions and implementing an effective planning process among SMEs management, which help probable increase in SMEs performance. It should be noted that the results of business advice not only depend on accountants but also on the individuals (owner-managers) who are responsible for selecting good and quality accountants. As this study is the first focusing business support among accountants public practice in Malaysia, a major contribution is generating OM decisions on selecting accountants as BA among the SMEs in the East Coast of Peninsular Malaysia. Consequently, the research results may be taken as input for future research to assist as a guide to develop hypotheses to be tested on and discover new insights on business support among SMEs in Malaysia.

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# Economic Vulnerability, Orientations and Performance: a study among Micro-enterprises in Kelantan, Malaysia



Syed Ali Fazal, Noor Raihani Zainol, Wan Nurulasiah Wan Mustapa, Abdullah Al Mamun, Anas A. Salameh, and Mohd Zulkifli Muhammad

**Abstract** This study examined the impact of economic vulnerability on strategic orientations (i.e. sales orientation, consumer orientation, competitive orientation, emotional orientation and business orientation), and the effect of strategic orientations on the performance of the micro-enterprises in Kelantan Malaysia. This study used a cross-sectional design and collected quantitative data through structured interviews from 450 micro-entrepreneurs in Kelantan, Malaysia. Economic vulnerability has significant negative effects on the dimensions of strategic orientation (i.e. Sales Orientation; Consumer Orientation; Competitive Orientation; Emotional Orientation, Business Orientation). Moreover, both competitive and business orientation showed significant positive effects on micro-enterprise performance. This is the first known study to test the relationship between economic vulnerability and strategic orientations. This study is further unique because of its focus on micro-entrepreneurs of emerging economies, a context missed by most previous studies. Apart from extending current literature, this paper could have significant policy and practical implications.

**Keywords** Economic vulnerability · Orientations · Performance · Micro-enterprise

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S. A. Fazal

Faculty of Business Administration, University of Science and Technology Chittagong, Dhaka, Bangladesh

N. R. Zainol (✉) · M. Z. Muhammad

Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Kelantan, Malaysia  
e-mail: [raihani@umk.edu.my](mailto:raihani@umk.edu.my)

W. N. W. Mustapa

UCSI Graduate Business School, UCSI University, Cheras, Kuala Lumpur, Malaysia

A. Al Mamun

UMK - Graduate School of Business, Universiti Kebangsaan Malaysia, Selangor, Malaysia

A. A. Salameh

Department of Management Information Systems, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia

## 1 Introduction

Economic vulnerability can usually be seen as the threat that an individual will be subjected to negative changes due to disturbance (Naudé et al. 2009). According to Lai and Anuar (2021), vulnerability denotes relations that are expensive to replace or/and disrupt, wherein such expenses need to be borne asymmetrically or symmetrically by partners. In a recent study, (Mamun et al. 2019) noted that vulnerability could be conceptualised as a condition of asset or income-related poverty that exposes households to various natural, political, or economic risks, while being defenseless against deprivation on a wider scale, which in turn influences their economic decisions as well as outcomes. Economic vulnerability has often been closely associated with poverty. The increasing awareness of poverty itself being fluid implies that some of the poor are not poor all the time (Gallardo 2020), which in turn translate that a historical equilibrium between deprivation and vulnerability has been created. The current focus on vulnerability is from the perspective of small businesses that are particularly vulnerable to the risks of climate and economic changes and have limited capacity to cope and adapt.

Small and medium enterprises (SMEs) are known to benefit immensely through significant contributions towards nation economies; which makes the performance of SMEs one of the major driving forces, particularly for developing countries (Sarker and Palit 2015). Small businesses, such as the microenterprises plays crucial role towards national development, as they cater large communal groups through low-paid employees (Mamun et al. 2019). Both developed and progressing nations host small businesses; however, microenterprises are found to be more relevant for the economic growth of emerging economies like Malaysia, wherein large number of micro-entrepreneurs function within the informal economy (Mamun et al. 2019). According to Al Mamun et al. (2018), small businesses, as a form of self-employment are notably increasing since the past few decades across most economies, thanks to governments worldwide who are actively promoting start-ups to achieve sustainable economic growth and address inequality. The burning question in this regard is what key-decision-makers capabilities shape or contextualizes economic vulnerability and performance in such small businesses.

One of the principles that influence and direct operations of any firm while simultaneously generating required behaviors for ensuring its performance and sustainability is the strategic orientation of the firm (Adams et al. 2019). According to Adams et al. (2019), orientations of a firm are crucial for organizational innovation, as they relate to the collection, identification, and analysis of business intelligence needed to create innovative knowledge within organizations. Moreover, empirically, (Sarker and Palit 2015) showed that most orientation dimensions significantly determine SME performance, particularly across the developing nations. In a recent study (Alawneh and Al-Zoubi 2020) argued that the positive relationship between social responsibility and strategic orientation through organizational prowess supports achieving desired organizational goals that facilitate firms to uncover opportunities, self-develop, and innovate; thereby addressing competitive work environment issues and facilitate

acquiring superior performance, which in turn enable organizations to cope with future developments or challenges. It is evident from the above that understanding the concept of economic vulnerability, poverty and their linkage to strategic orientations and performance of microenterprises is important for the effort to improve the standard of living of low-income entrepreneurs across the world. Some studies have come close to exploring similar research areas (Graveline and Gremont 2017; Marks and Thomalla 2017; Marshall et al. 2015). However, as noted by Lai and Anuar (2021), despite the ascendance of debates and policies related to the issue, the understanding of how conceptual discussions of economic vulnerability and risks impact businesses are yet unclear. Moreover, earlier studies have stressed the need for investigating the influence of multiple orientation dimensions on firm performance across small to medium sized enterprises of emerging nations (Sarker and Palit 2015). Hence, to extend current literature and forward practical recommendations this paper aimed to examine the effect of economic vulnerability on strategic orientation as well as the effect of strategic orientation on micro-enterprise performance among the participants of various development organizations in Kelantan, Malaysia.

## 2 Literature Review

### 2.1 Theoretical Foundation

For the purpose of this study, we attend the interactions between variables of interest through the lens of the resource-based view (RBV), an approach with important theoretical base and solid history in terms of small business research and entrepreneurial studies (Khan et al. 2021). RBV focuses on the integration of firm-specific capabilities and resources. Hence based on RBV perspective we view strategic orientations as resource strategies and a strategic choice. In general, individual business-related decisions being interdependent and interactive portray a pattern reflecting strategic stance or orientations (Khan et al. 2021). Strategic orientation can be considered as a particular skill that drives firm business strategy and generates potential for superior company performance (Romero et al. 2014). (Wernerfelt 1984) stated RBV claims of business resources affecting efficiency, wherein resources could be defined as physical assets, intangible assets and business capabilities permanently linked the company. As stated by Barney (1991), when the resources are neither perfectly imitable nor replaceable without much effort, they are considered as valuable, rare, inimitable and unreplaceable. From the RBV viewpoint, the business strategic orientation could be considered such significant business assets (Han and Zhang 2021) and if their capacity can be converted into unique, important and inimitable capital, better performance can be achieved for the company.

On the other hand, RBV indicates that poverty-related consequences such as economic vulnerability among micro-entrepreneurs could be coined as “resource

poverty” that is known to compel individuals to operate under severe time, financial, and expertise-related constraints (Collins 2021), thereby negatively affecting capabilities, such as strategic orientation, which in turn negatively impacts firm performance (Mamun et al. 2019). Moreover, earlier studies voiced also that resource poverty as a form of vulnerability could inhibit the opportunity exploitation, operations, as well as growth and development, of microenterprises (Phillipson et al. 2004; Raley and Moxey 2000). Based on the above, this study found the RBV as a suitable theoretical avenue to examine the effect of economic vulnerability on strategic orientation, as well as the effect the strategic orientations on enterprise performance.

## 2.2 *Strategic Orientation and Its Dimensions*

Strategic orientation is referring to a strategic decision and business principal that directs activities and creates behaviours aimed at improving business performance (Hakala 2011). In the context of management literature, broad cluster of theoretical and empirical studies focused on sales orientation, consumer orientation, competitive orientation, emotional orientation and business orientation; taken into consideration to capture firms’ strategic orientation. However, majority of prior literature focused on a particular strategic orientation dimension and its effect on business performance (Gnizy et al. 2014). Research analysing more than one strategic orientation is comparatively limited (Hakala 2011). Therefore, based on existing studies, we attempt to extent current literature by focussing on multiple dimensions of strategic orientation (i.e. sales orientation, consumer orientation, competitive orientation, emotional orientation and business orientation), as their complementary potential are expected to enable businesses achieve a better performance.

Sales orientation of an organization reflects the utilization of sales trends instead of satisfying consumer needs (Mehrabi et al. 2012). The other dimension, consumer orientation applies to the compilation of consumer knowledge to satisfy their needs and wishes (Tan and Tan 2005; Tyler and Gnyawali 2002; Yang et al. 2020). According to Mehrabi et al. (2012), consumer-oriented organizations perceive buyers sufficiently, which aid them to create superior value for customers. Competitive orientation, on the other side refers to the competitive guidance denoted by the ability of business to recognize, assets and respond to competitive measure (Crick 2021). According to Chen et al. (2011), competitive orientation reflects an entity’s perception of others as means for self-development and demonstrates self-worth. In a more recent study (Orosz et al. 2018) argued that competitive orientation represents a multi-dimensional variable that can integrate both detrimental as well as beneficial aspects of social behaviour. As for emotional orientation, the construct refers to different (probably overlapping) constellations of somatic markers, characterised by a set of decision-making criteria appropriate to specific work in specific communities, which translates to expected behaviour (Reid et al. 2017). Finally, a business orientation has been defined as a corporate culture “that most effectively and efficiently creates the



necessary behaviour required for the creation of superior value for buyers” (Bamgbade et al. 2017). According to Khan et al. (2021), business orientation denotes to psychological traits of business owners that include their purposes and goals along with their emotional attachment towards the firm.

### 2.3 *Economic Vulnerability and Strategic Orientations*

The Vulnerability term refers to risk. The meanings associated with the risk context are different depends on the discipline in which it is studied. (Burkett et al. 2014) describe vulnerability in the terms of a system exposure, sensitivity and adaptive capacity. (Cordeiro et al. 2019) offers tremendous details that vulnerability as the state of susceptibility to harmful effects from exposure to stresses associated with change and lack of adaptability to that change. (Carr 2019) has highlighted various ways in which vulnerability results from social and economic inequalities leading to normatively charged terms specifically in terms of living conditions and entitlements. On the other hand, strategic orientations as the general outlines for the organisation’s strategy that enables an organisation to integrate and develop external as well as internal capabilities (Sarker and Palit 2015).

Businesses need to cope with unfavourable events and risks that create high level of uncertainty and challenges to ensure long-term viability and performance (Yang et al. 2020). As stated by Kunc and Bhandari (2011), economic vulnerability is a good example of a risk that makes a business reconsider its strategies as it manage to survive during the risk. According to Vaaler and McNamara (2004), the economic vulnerability can be described as the duration of unforeseen and unfavourable risk that is faced by businesses in the external environment. Vulnerability has a significant impact on the viability of the business and implies the need to make a decision quickly (Kunc and Bhandari 2011). The impact of any vulnerability to failure could negatively influence and inhibit strategic orientations that are vital to guide firms to frame their future course of action while simultaneously addressing market changes, challenges, and uncertainties (Mandal and Saravanan 2019). With this in the mind, the present study focuses on the impact of economic vulnerability on selected dimension of strategic orientations (i.e. sales orientation, consumer orientation, competitive orientation, emotional orientation and business orientation). Hence, the following hypotheses are proposed.

**Hypothesis 1:** *Economic Vulnerability has a significant negative effect on Sales Orientation*

**Hypothesis 2:** *Economic Vulnerability has a significant negative effect on Consumer Orientation*

**Hypothesis 3:** *Economic Vulnerability has a significant negative effect on Competitive Orientation*

**Hypothesis 4:** *Economic Vulnerability has a significant negative effect on Emotional Orientation*

**Hypothesis 5:** *Economic Vulnerability has a significant negative effect on Business Orientation*

## 2.4 Strategic Orientations and Micro-enterprise Performance

Several previous studies focused on the relationship between strategic orientation and business performance (Hakala 2011; Deutscher et al. 2016; Lonial and Carter 2015; Laukkanen et al. 2013). Empirically, (Sarker and Palit 2015) showed that several dimensions of strategic orientation significantly correlate with SME performance. In particular (Barney 1991) denotes that sales orientation approaches places emphasis on strong customer impact. As RBV puts it, a company's inimitable skills are able to lead to exceptional performances for sales orientation focus. In an earlier study, (Churchill et al. 1985) stated that selling is the most important determinant of company performance. Later (Jaramillo et al. 2007) highlighted on sales orientation as an essential forecasters of company performance. Moreover, (Wachner et al. 2009) reported that sales orientation has positive performance impacts. Consumer orientation, on the other hand advocates a continuous, proactive willingness to meet the expressed and latent needs of consumers (Han et al. 1998). (Jaramillo et al. 2007) noted that consumer guidance is an importance predictor of company performance. In a recent study, (Adusei et al. 2020) stated that as organizational income is derived from rendering services to customers, customer orientation is the key driver for any firm to deliver quality service, enhance customer retention, improve relationship with its market, and thereby acquire superior organizational performance.

As for competitive orientation, (Bamgbade et al. 2017) argued that the construct reflects the ability of the seller to understand the short-term strength and weakness of the business as well as its long-term capabilities and strategies. Eventually, in regards to business orientation, several previous studies have provided empirical support for the positive association between business orientation and performance (Chen et al. 2015; Baker and Sinkula 2007; Narver and Slater 1990). In particular, (Campopiano et al. 2020) argued that business orientation is related to the value creation process of the firm, which indicates that the construct could manipulate firm performance. Drawing on the RBV, we could further deduce that effective business-oriented approach can facilitate business to perform superbly as they would understand their consumer need and wants, as well as competitors strategies and capabilities (Abbu and Gopalakrishna 2019; Hult and Ketchen 2001). In line with this, (Abbu and Gopalakrishna 2019) also claimed that business orientation is complementary resources that can contribute to the business performance. Hence based on the above, this study proposes the following hypotheses:

**Hypothesis 6:** *Sales Orientation has a significant positive effect on Micro-Enterprise Performance*

**Hypothesis 7:** *Consumer Orientation has a significant positive effect on Micro-Enterprise Performance*

**Hypothesis 8:** *Competitive Orientation has a significant positive effect on Micro-Enterprise Performance*

**Hypothesis 9:** *Emotional Orientation has a significant positive effect on Micro-Enterprise Performance*

**Hypothesis 10:** *Business Orientation has a significant positive effect on Micro-Enterprise Performance*

### 3 Research Methodology

This study used a cross-sectional design and collected quantitative data through structured interview to assess the impact of economic vulnerability on sales orientation, consumer orientation, competitive orientation, emotional orientation and business orientation. Furthermore, this study examine the effect of sales orientation, consumer orientation, competitive orientation, emotional orientation and business orientation on the performance of micro-enterprises owned and managed by low-income and poor households from Kelantan, Malaysia. The population of this study is the micro-entrepreneurs who participated in various developmental programs offered by non-profit organizations in Kelantan, Malaysia. The total participants of the developmental program initiated by AIM, TEKUN and LKIM in Kelantan, Malaysia are 88,435 low-income micro-entrepreneurs. The research team obtained a list of 500 low-income micro-entrepreneurs from AIM Kelantan, a list of 350 low-income micro-entrepreneurs from TEKUN Kelantan and a list of 156 low-income micro-entrepreneurs from LKIM Kelantan. The total of 1,006 active participants was located in seven districts namely Tumpat, Bachok, Pasir Puteh, Pasir Mas, Tanah Merah, Gua Musang and Jeli. The research team contacted all 1006 respondents to explain the purpose of the survey and to secure the interview appointments. However, only 450 respondents agreed to be interviewed at their locality.

#### 3.1 Sample Size

The sample size for this study was calculated using G-Power version 3.1. Based on the power of 0.95 with an effect size of 0.15, this study needed a sample size of 146 to test the model with six predictors. However, to avoid any possible complications arising from a small sample size, this study collected data from 450 micro-entrepreneurs living in seven districts across Kelantan, Malaysia.

### 3.2 Measuring Economic Vulnerability

Economic vulnerability refers to the risk of exposure to potentially harmful events. Studies conceptualized vulnerability as vulnerability to income poverty, to asset poverty or a more dynamic concept reflecting the risk of exposure of a combination of political, natural and economic disasters. The economic vulnerability, in this study measured by using the index presented below:

$$EV = CV_i AST_A DIV_{si} POV_i \frac{1}{DIV_i} DEP_h$$

$EV$  denotes the vulnerability index that measures the level of economic vulnerability of the participating households.  $CV_i$  is the coefficient of variation of average monthly household income (last twelve months) among the three groups of households based on the length of participation (i.e., 1 to 5 years, 6 to 10 years, and 11 years and above).  $AST_A = \sqrt{\ddot{A} / A_i}$ , where  $\ddot{A}$  is the average net worth of enterprise assets among the same group of clients.  $A_i$  represents net worth of enterprise assets (SQRT 38,723.33/HouseBusiness10).  $DIV_{si}$  measures the proportion of total income from enterprise income (participants own and manage). The effect of poverty level on economic vulnerability was measured as  $POV_i = \sqrt{(PLI_{PH} | I_{HH})}$ , where  $I_{HH}$  is the average monthly household income;  $PLI_{PH}$  refers to the income of bottom 40% of the population in Malaysia, which was RM2000 per household per month. The effect of diversification in the sources of income on economic vulnerability was measured as  $DIV_i = \sqrt{SOI}$ , where  $SOI$  represents the total number of sources of income (full time). Households with higher proportion of dependent members per gainfully employed member ratio are expected to be more vulnerable ( $DEP_h$ ).

### 3.3 Research Instrument

The questionnaire was designed by using simple and unbiased terms to ensure that the participants easily understood the question and provides answer based on their own perceptions. The survey items were adapted from the prior studies with minor alterations in required sections. The items employed to measure sales orientation were adopted from Saxe and Weitz (1982). As for the consumer orientation, competitive orientation, business orientation and emotional orientation items were adopted from Molina et al. (2019). A seven-point Likert scale (1 to 7, from “strongly disagree” to “strongly agree”) was used for micro-enterprise performance, while a five-point Likert scale (1 to 5, from “strongly disagree” to “strongly agree”) was applied for all the independent variables.

### **3.4 *Multivariate Normality***

This study tested multivariate normality using the Web Power online tool. Web Power calculated Mardia's multivariate skewness and kurtosis coefficients and p-values, showing that the p-value of Mardia's multivariate skewness and kurtosis was less than 0.01, confirming multivariate non-normality.

### **3.5 *Data Analysis Method***

Due to the exploratory nature of this study and the non-normality issue, this study used variance-based structural equation modeling via a partial least squares (PLS-SEM) estimation with the primary objective of maximizing the explanation of variance in the structural equation model's dependent constructs. The findings of this analysis are reported as recommended by Hair et al. (2019) for PLS modeling. These include the indicator reliability, internal consistency reliability, convergent validity, discriminant validity, Average Variance Extracted and path coefficient estimates.

## **4 *Summary of Findings***

### **4.1 *Demographic Characteristics***

This study collected the data from 450 micro-entrepreneurs in Kelantan Malaysia. Table 1 showed that, from the total of 450 respondents, 226 or 50.2% were females and the rest 224 or 49.8% were males. As for the age, majority of the respondents were in age of 41–50 years old (200 or 27.8%), followed by 125 (27.8%) aged between 51 and 60 years, 64 or 14.2% aged between 31 and 40 years old, and 40 (8.9%) more than 61 years old. The remaining of the respondents of this study is below than 30 years old (21 or 4.7%). As for the respondent's education level, majority of them completed their primary school (251 or 55.8%), followed by respondents who completed the secondary school (136 or 30.2%). However, only 48 respondents (10.7%) have the highest education level, which was STPM, or diploma level. The rest of the respondents never attended the school (15 or 3.3%).

As for the years of firm established, the majority of the respondents have established their firm in 6 to 10 years (192 or 42.7%), followed by 144 or 32% of respondents whose firm established in 11 to 15 years, 60 (13.3%) respondents have established their firm in 16 to 20 years and 52 or 11.6% of respondents have established their firm in 1 to 5 years. The rest 2 or 0.4% of respondents have established their firm since more than 21 years. Majority of the respondents were in service (266 or 59.1%), followed by 80 (17.8%) involved in retailing, 52 (11.6%) worked manufacturing, 33 (7.3%) were fisherman, 17 (3.8%) engaged with livestock and only

**Table 1** Profile of the respondent

|                           | n   | %     |                            | n   | %     |
|---------------------------|-----|-------|----------------------------|-----|-------|
| <i>Gender</i>             |     |       | <i>Firm Established</i>    |     |       |
| Male                      | 22  | 49.8  | 1 to 5 Years               | 52  | 11.6  |
|                           | 4   |       |                            |     |       |
| Female                    | 22  | 50.2  | 6 to 10 Years              | 192 | 42.7  |
|                           | 6   |       |                            |     |       |
| Total                     | 45  | 100.0 | 11 to 15 Years             | 144 | 32.0  |
|                           | 0   |       |                            |     |       |
|                           |     |       | 16 to 20 Years             | 60  | 13.3  |
| <i>Age</i>                |     |       | 21 Years and Above         | 2   | 0.4   |
| Up to 30 years old        | 21  | 4.7   | Total                      | 450 | 100.0 |
| 31 years old-40 years old | 64  | 14.2  |                            |     |       |
| 41 years old-50 years old | 200 | 44.4  | <i>Types of Firm</i>       |     |       |
| 51 years old-60 years old | 125 | 27.8  | Manufacturing              | 52  | 11.6  |
| 61 years old and above    | 40  | 8.9   | Retailing                  | 80  | 17.8  |
| Total                     | 450 | 100.0 | Service                    | 266 | 59.1  |
|                           |     |       | Livestock                  | 17  | 3.8   |
| <i>Education</i>          |     |       | Wholesaling                | 2   | 0.4   |
| Never attended school     | 15  | 3.3   | Fishing                    | 33  | 7.3   |
| Primary School            | 251 | 55.8  | Total                      | 450 | 100.0 |
| Secondary school          | 136 | 30.2  |                            |     |       |
| STPM/Diploma              | 48  | 10.7  | <i>Number of Employees</i> |     |       |
| Total                     | 450 | 100.0 | None                       | 2   | .4    |
|                           |     |       | One                        | 27  | 6.0   |
|                           |     |       | Two                        | 46  | 10.2  |
|                           |     |       | Three                      | 97  | 21.6  |
|                           |     |       | Four                       | 176 | 39.1  |
|                           |     |       | Five                       | 55  | 12.2  |
|                           |     |       | Six and above              | 47  | 10.6  |
|                           |     |       | Total                      | 450 | 100.0 |

2 (0.4%) were into wholesaling. As for their number of employees, majority of respondents reported having four employees (176 or 39.1%), followed by 97 (21.6%) having three employees, 55 (12.2%) having five employees, 47 (10.6%) having more than 6 employees, 46 (10.2%) having two employees and 27 (6%) having only one employee. The rest of the respondents (2 or 0.4%) manage the firm by themselves.

### 4.2 Reliability and Validity

The descriptive statistics and the measures used to analyze the items' reliability is showed in Table 2. The mean and standard deviation values of economic vulnerability, sales orientation, consumer orientation, competitive orientation, emotional orientation, business orientation and micro-enterprise performance are showed in Table 2. As revealed in Table 2, the mean value is between 0.674 for economic vulnerability and 4.332 for micro-enterprise performance. The highest mean value is found in micro-enterprise performance and the lowest mean value is found in economic vulnerability. The standard deviation value varies between 0.581 for micro-enterprise performance and 1.008 for sales orientation. This indicated that, the lowest standard deviation value is for micro-enterprise performance, thus the highest standard deviation value was found for sales orientation.

The reliability and validity measure for all variables is presented in Table 2. As expected, the Cronbach alpha value exceeded 0.7 thresholds, implying that the items are reliable. However, to evaluate the construct reliability, this study uses Dillion-Goledsteinrho. The rho value higher than 0.7, indicated that the items explained more than 70% of the variances of corresponding measured variables (Fornell and Larcker 1981). As for composite reliability presented in Table 2, all variables value showed more than 0.7 (Hair et al. 2019), confirming the construct reliability as well as high consistency of indicators measuring each variable. According to Hair et al. 2019, the component is considered reliable if the value of loadings is higher than 0.7. However, if the value is 0.5 and above it is still acceptable provided the AVE value a higher than critical value, which is 0.5. As presented in Table 3, the value of indicator loading in this study is higher than 0.7, except for competitive orientation (item 4 and item 6) which showed the value is less than 0.7, but still reliable because the AVE value is more than 0.5. To measure the convergent validity, this study tested the

**Table 2** Reliability and validity

| Variables                    | Items | Mean  | SD    | CA    | DG rho | CR    | AVE   | VIF   |
|------------------------------|-------|-------|-------|-------|--------|-------|-------|-------|
| Economic Vulnerability       | 1     | 0.674 | 0.587 | -     | -      | -     | -     | -     |
| Sales Orientation            | 7     | 3.348 | 1.008 | 0.933 | 0.980  | 0.945 | 0.711 | 1.214 |
| Consumer Orientation         | 4     | 4.001 | 0.607 | 0.832 | 0.863  | 0.889 | 0.669 | 2.292 |
| Competitive Orientation      | 6     | 4.046 | 0.592 | 0.791 | 0.831  | 0.853 | 0.503 | 1.829 |
| Emotional Orientation        | 3     | 4.071 | 0.739 | 0.709 | 0.705  | 0.837 | 0.633 | 1.796 |
| Business Orientation         | 4     | 3.751 | 0.752 | 0.737 | 0.751  | 0.824 | 0.539 | 1.581 |
| Micro-Enterprise Performance | 3     | 4.332 | 0.581 | 0.841 | 0.856  | 0.904 | 0.758 | -     |

**Note:** Standard Deviation (SD); Cronbach's Alpha (CA); Dillon-Goldstein's rho (DG rho); Composite Reliability (CR); Average Variance Extracted (AVE); Variance Inflation Factors (VIF)  
**Source:** Author(s) own compilation

**Table 3** Loadings and cross-loadings

| Item Code                        | EcoV         | SalO         | ConO         | ComO         | EmoO         | BusO         | MEP          |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| EcoV – Item 1                    | <b>1.000</b> | -0.223       | -0.401       | -0.376       | -            | -0.342       | -0.412       |
| SalO – Item 1                    | -0.305       | <b>0.870</b> | 0.454        | 0.425        | 0.437        | 0.383        | 0.138        |
| SalO – Item 2                    | -0.166       | <b>0.881</b> | 0.347        | 0.292        | 0.329        | 0.345        | 0.061        |
| SalO – Item 3                    | -0.124       | <b>0.802</b> | 0.171        | 0.153        | 0.199        | 0.176        | 0.106        |
| SalO – Item 4                    | -0.155       | <b>0.859</b> | 0.272        | 0.175        | 0.281        | 0.251        | 0.112        |
| SalO – Item 5                    | -0.204       | <b>0.909</b> | 0.276        | 0.267        | 0.244        | 0.323        | 0.196        |
| SalO – Item 6                    | -0.122       | <b>0.765</b> | 0.118        | 0.203        | -            | 0.226        | 0.159        |
| SalO – Item 7                    | -0.135       | <b>0.806</b> | 0.310        | 0.329        | 0.288        | 0.366        | 0.060        |
| ConO – Item 1                    | -0.234       | 0.201        | <b>0.650</b> | 0.479        | 0.385        | 0.275        | 0.060        |
| ConO – Item 2                    | -0.346       | 0.395        | <b>0.834</b> | 0.562        | 0.525        | 0.414        | 0.119        |
| ConO – Item 3                    | -0.343       | 0.290        | <b>0.895</b> | 0.566        | 0.561        | 0.524        | 0.151        |
| ConO – Item 4                    | -0.371       | 0.241        | <b>0.870</b> | 0.478        | 0.578        | 0.548        | 0.171        |
| ComO – Item 1                    | -0.311       | 0.338        | 0.602        | <b>0.819</b> | 0.528        | 0.482        | 0.075        |
| ComO – Item 2                    | -0.339       | 0.327        | 0.640        | <b>0.853</b> | 0.480        | 0.460        | 0.163        |
| ComO – Item 3                    | -0.288       | 0.267        | 0.607        | <b>0.795</b> | 0.549        | 0.477        | 0.121        |
| ComO – Item 4                    | -0.127       | 0.013        | 0.141        | <b>0.451</b> | 0.152        | -0.079       | 0.091        |
| ComO – Item 5                    | -0.285       | 0.159        | 0.293        | <b>0.691</b> | 0.151        | 0.307        | 0.287        |
| ComO – Item 6                    | -0.173       | 0.210        | 0.278        | <b>0.553</b> | 0.398        | 0.219        | 0.167        |
| EmoO – Item 1                    | -0.278       | 0.317        | 0.566        | 0.495        | <b>0.807</b> | 0.480        | 0.118        |
| EmoO – Item 2                    | -0.263       | 0.253        | 0.594        | 0.480        | <b>0.836</b> | 0.373        | 0.074        |
| EmoO – Item 3                    | -0.274       | 0.181        | 0.364        | 0.307        | <b>0.740</b> | 0.230        | 0.170        |
| BusO – Item 1                    | -0.316       | 0.288        | 0.459        | 0.353        | 0.320        | <b>0.766</b> | 0.124        |
| BusO – Item 2                    | -0.338       | 0.234        | 0.491        | 0.484        | 0.408        | <b>0.758</b> | 0.214        |
| BusO – Item 3                    | -0.125       | 0.263        | 0.297        | 0.270        | 0.268        | <b>0.704</b> | 0.203        |
| BusO – Item 4                    | -0.125       | 0.296        | 0.296        | 0.230        | 0.288        | <b>0.708</b> | 0.176        |
| MEP – Item 1                     | -0.333       | 0.101        | 0.143        | 0.195        | 0.137        | 0.239        | <b>0.857</b> |
| MEP – Item 2                     | -0.425       | 0.139        | 0.144        | 0.240        | 0.136        | 0.206        | <b>0.913</b> |
| MEP – Item 3                     | -0.307       | 0.161        | 0.131        | 0.135        | 0.134        | 0.184        | <b>0.840</b> |
| <i>Fornell-Larcker Criterion</i> |              |              |              |              |              |              |              |
| EcoV                             | <b>1.000</b> |              |              |              |              |              |              |
| SalO                             | -0.223       | <b>0.843</b> |              |              |              |              |              |
| ConO                             | -0.401       | 0.347        | <b>0.818</b> |              |              |              |              |
| ComO                             | -0.376       | 0.328        | 0.632        | <b>0.709</b> |              |              |              |
| EmoO                             | -0.343       | 0.314        | 0.634        | 0.534        | <b>0.795</b> |              |              |
| BusO                             | -0.342       | 0.359        | 0.554        | 0.487        | 0.452        | <b>0.734</b> |              |
| MEP                              | -0.412       | 0.151        | 0.160        | 0.223        | 0.156        | 0.242        | <b>0.871</b> |
| <i>(HTMT)</i>                    |              |              |              |              |              |              |              |
| EcoV                             | -            |              |              |              |              |              |              |
| SalO                             | <b>0.212</b> | -            |              |              |              |              |              |
| ConO                             | 0.435        | <b>0.372</b> | -            |              |              |              |              |
| ComO                             | 0.408        | 0.360        | <b>0.762</b> | -            |              |              |              |
| EmoO                             | 0.406        | 0.379        | 0.824        | <b>0.722</b> | -            |              |              |
| BusO                             | 0.352        | 0.429        | 0.639        | 0.585        | <b>0.596</b> | -            |              |
| MEP                              | 0.444        | 0.163        | 0.190        | 0.257        | 0.197        | <b>0.302</b> | -            |

**Notes:** Note: (a) The Italic values in the matrix above are the item loadings and others are cross-loadings

EcoV: Economic Vulnerability, SalO: Sales Orientation; ConO: Consumer Orientation; ComO: Competitive Orientation; EmoO: Emotional Orientation, BusO: Business Orientation; MEP: Micro-Enterprise Performance; HTMT: Heterotrait-Monotrait Ratio

**Source:** Author(s) own compilation

average variance extracted (AVE). The AVE values for this study are more than 0.50. As (Hair et al. 2019) stated the AVE value of more than 0.5 explained a sufficient degree of convergent validity, representing the items explain more than half of the variable’s variance. Finally, in this study, we calculated the variance inflation factor (VIF) to examine the multicollinearity issues. The VIF value for this study presented



in Table 2 showed that the VIF values are less than 5 for all variables, indicating that there are no serious multicollinearity issues in this study (Hair et al. 2019).

This study used cross loading and Fornell Larcker criterion to evaluate the presence of discriminant validity (Hair et al. 2019). According to Hair et al. 2019, the cross-loading methods needed the loading of each indicator on its construct to be higher than cross-loading on other construct. Table 3 revealed that, all the indicators loading is higher than entire cross-loading which confirmed the discriminant validity. According to Hair et al. 2019, the Fornell Larcker method needed the AVE value for each construct to be higher than the highest squared correlation to pass this criterion. As presented in Table 3, all construct in this study manage to meet this criterion. Finally, the Heterotrait-Monotrait Ratio (HTMT), as an estimation of the correlation between the construct that parallels the disasstenuated construct score creation is used to reveal lack of discriminant validity. As presented in Table 3, this study verifies there are no evidence of lack of discriminant validity and all the construct in this study meet the set criteria.

### 4.3 Path Analysis

As stated by the (Hair et al. 2019), the level and significance of the path coefficients are the crucial evaluation of the structural model. The path coefficients imply the hypothesized relationship between the construct (Hair et al. 2019). Table 4 revealed that the coefficient value for economic vulnerability on sales orientation (hypotheses 1) is negative ( $\beta = -0.223$ ) and significant ( $p$ -value  $< 0.05$ ), thus the

**Table 4** Path analysis

|  |             | Beta   | CI-<br>Min | CI-<br>Max | t<br>value | Sig.  | f <sup>2</sup> | Decision |
|--|-------------|--------|------------|------------|------------|-------|----------------|----------|
| <i>Economic Vulnerability and Orientations</i> |             |        |            |            |            |       |                |          |
| H <sub>1</sub>                                 | EcoV → SalO | -0.223 | -0.296     | -0.163     | 5.629      | 0.000 | 0.052          | Accept   |
| H <sub>2</sub>                                 | EcoV → ConO | -0.401 | -0.476     | -0.322     | 8.497      | 0.000 | 0.192          | Accept   |
| H <sub>3</sub>                                 | EcoV → ComO | -0.376 | -0.474     | -0.277     | 6.220      | 0.000 | 0.164          | Accept   |
| H <sub>4</sub>                                 | EcoV → EmoO | -0.343 | -0.421     | -0.265     | 7.301      | 0.000 | 0.134          | Accept   |
| H <sub>5</sub>                                 | EcoV → BusO | -0.342 | -0.422     | -0.266     | 7.424      | 0.000 | 0.133          | Accept   |
| <i>Orientations and Performance</i>            |             |        |            |            |            |       |                |          |
| H <sub>6</sub>                                 | SalO → MEP  | 0.055  | -0.037     | 0.138      | 1.038      | 0.150 | 0.055          | Reject   |
| H <sub>7</sub>                                 | ConO → MEP  | -0.062 | -0.174     | 0.070      | 0.846      | 0.199 | -              | Reject   |
| H <sub>8</sub>                                 | ComO → MEP  | 0.149  | 0.003      | 0.269      | 1.878      | 0.031 | 0.149          | Accept   |
| H <sub>9</sub>                                 | EmoO → MEP  | 0.019  | -0.097     | 0.140      | 0.244      | 0.404 | 0.019          | Reject   |
| H <sub>10</sub>                                | BusO → MEP  | 0.176  | 0.064      | 0.277      | 2.708      | 0.003 | 0.176          | Accept   |

**Notes:** EcoV: Economic Vulnerability, SalO: Sales Orientation; ConO: Consumer Orientation; ComO: Competitive Orientation; EmoO: Emotional Orientation, BusO: Business Orientation; MEP: Micro-Enterprise Performance

**Source:** Author(s) own compilation

H\_1 is accepted. As for the hypotheses 2, the coefficient value for economic vulnerability on consumer orientation is  $-0.401$  with the  $p$ -value  $< 0.005$ . This showed that the economic vulnerability has a negative and significant effect on consumer orientation, thus H\_2 is accepted. The same negative effect was found for the economic vulnerability on competitive orientation. The coefficient value for economic vulnerability showed a negative ( $\beta = -0.376$ ) and significant ( $p$ -value  $< 0.05$ ) effect on competitive orientation (hypotheses 3). In this study, H\_3 is accepted. As for the hypotheses 4, the coefficient value for economic vulnerability showed a negative ( $\beta = -0.343$ ) and significant ( $p$ -value  $< 0.05$ ) effect on emotional orientation. Thus, the H\_4 is accepted. Finally, the coefficient value for economic vulnerability on business orientation (hypotheses 5) showed a negative ( $\beta = -0.341$ ) and significant ( $p$ -value  $< 0.05$ ), thus this study accepts the H\_5. (Hair et al. 2019) further stated that the effect size ( $f^2$ ) assists the analysis of the relevance of construct in justifying chosen endogenous latent variables. Table 4 showed the effect size of economic vulnerability on sales orientation, consumer orientation, competitive orientation, emotional orientation and business orientation. Results portray that economic vulnerability has small effects on sales orientation, small to medium effects on emotional orientation and business orientation, medium to large effects on consumer orientation and competitive orientation.

Table 4 further showed the path coefficient value for sales orientation on micro-enterprise performance (hypotheses 6). As presented in Table 4, the coefficient value for sales orientation on micro-enterprise performance is positive ( $\beta = 0.055$ ) and insignificant ( $p$ -value = 0.150), thus this study rejects the H\_6. As for the hypotheses 7, the unexpected negative effect was found for consumer orientation on micro-enterprise performance. The coefficient value for consumer orientation showed a negative ( $\beta = -0.062$ ) and insignificant  $p$  value (more than 0.05), thus this study decided to reject the hypotheses 7. The coefficient value for hypotheses 8 denoting the effect of competitive orientation on micro-enterprise performance showed a positive ( $\beta = 0.149$ ) and significant ( $p$ -value  $< 0.05$ ), thus, this study accepts the hypotheses 8. As for the emotional orientation on micro-enterprise performance (hypotheses 9), the coefficient value revealed a positive ( $\beta = 0.019$ ) and insignificant  $p$  value (more than 0.05). Hence this study decided to reject the hypotheses 9. Finally, as for the last hypotheses which is hypotheses 10, the Table 4 showed the positive coefficient value for business orientation ( $\beta = 0.176$ ) and significant ( $p$ -value of  $0.003 < 0.05$ ) on micro-enterprise performance. Based on the result, this study accepts the hypotheses 10.

## 5 Discussion

This study examined the effect of economic vulnerability on strategic orientation as well as the effect of strategic orientation on micro-enterprise performance among the participants of various development organizations in Kelantan, Malaysia. Findings revealed that economic vulnerability has significant negative effects on

selected dimensions of strategic orientation (i.e. Sales Orientation; Consumer Orientation; Competitive Orientation; Emotional Orientation, Business Orientation). In line with RBV and other existing studies these findings indicate that poverty-related consequences such as economic vulnerability among micro-entrepreneurs represent “resource poverty” that negatively affects firm-specific capabilities, such as strategic orientations (c.f. (Mamun et al. 2019; Yang et al. 2020; Kunc and Bhandari 2011; Vaaler and McNamara 2004; Mandal and Saravanan 2019)).

Findings further revealed that both competitive and business orientation have significant positive effects on micro-enterprise performance. Supporting the RBV, the findings portray that effective strategic orientation dimensions (i.e. competitive and business orientation), as complimentary, unique resources can facilitate business to perform superbly. In line with existing studies, our findings suggest that ability of the micro-entrepreneur to understand the short-term strength and weakness of the business as well as its long term capabilities and strategies are important determinants of micro-enterprise performance (Chen et al. 2015; Baker and Sinkula 2007; Narver and Slater 1990). Following existing studies (Campopiano et al. 2020; Abbu and Gopalakrishna 2019; Hult and Ketchen 2001) we contend that the value creation process coupled with nuanced understanding of consumer need and wants, as well as competitors’ strategies and capabilities could contribute towards superior micro-enterprise performance.

## 6 Conclusion

Apart from the potential contribution towards overall economic and industrial growth, SMEs in developing nations have gained special importance for their role in poverty reduction, which is the subject of economic vulnerability (Sarker and Palit 2015). Hence, this study examined the effect of economic vulnerability on strategic orientation as well as the effect of strategic orientation on micro-enterprise performance among the participants of various development organizations in Kelantan, Malaysia. We used a cross-sectional design and collected quantitative data through structured interviews from 450 micro-entrepreneurs in Kelantan, Malaysia. This study used PLS-SEM for the analysis. Findings revealed that economic vulnerability has significant negative effects on selected dimensions of strategic orientation (i.e. Sales Orientation; Consumer Orientation; Competitive Orientation; Emotional Orientation, Business Orientation). Findings further revealed that both competitive and business orientation have significant positive effects on micro-enterprise performance. In terms of contributions this is the first known study to test the relationship between economic vulnerability and strategic orientations. This study is further unique because of its focus on micro-entrepreneurs of emerging economies, a context missed by most previous studies. The context is not only rare but also relevant as low-income micro-entrepreneurs depend heavily on their firm income and remain prone to various vulnerabilities, thanks to their limited capacity to cope with diverse risks and environmental changes, as well as adapt the mitigation strategies.

Theoretically, we extend the RBV by examining the effect of economic vulnerability and strategic orientation through its lens. We highlighted the less talked angle of RVB related to “resource poverty” that is known to compel individuals to operate under severe time, financial, and expertise-related constraints. Our findings translate that vulnerability as a form of resource poverty could inhibit the opportunity exploitation, operations, as well as growth and development, of microenterprises. At the same time, this study enriches the current literature by considering the impact of multi-dimensional strategic orientations on firm performance, particularly in context of emerging economies. As for policy implications, this study could guide policy-makers in both Government and developmental organizations to formulate effective strategies to mitigate economic vulnerability and improve micro-enterprise performance; which could enhance standard of living and ensure wellbeing of low-income entrepreneurs. Finally, for the micro-entrepreneurs we highlight the significance of strategic orientations that could be exploited to improve their firm performance instead of depending solely on Government or Non-Government support to sustain their business ventures. This study is not without its share of limitation. The list of strategic orientation dimensions used in this study remains non-exhaustive. Hence we recommend future researchers to extend current framework by integrating other dimensions of strategic orientations, which could forward a deeper understanding of distinct firm-specific competencies, as a source of sustainable competitive advantage.

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# The Impact of Minimum Wage on Economic Growth: Empirical Analysis on Developed and Developing Countries



Nurza Mohamed Yusoff , Nurnaddia Nordin , and Nurhaiza Nordin 

**Abstract** The minimum wage is a contentious and divisive subject, with numerous viewpoints and studies. Therefore, the global economic crisis that lasted from 2018 to 2019 had a significantly different impact on economic growth in developed and developing countries. The main objective of this paper is to examine the impact of minimum wage implementation on economic growth in developed and developing countries during the recession period. This paper used a method where its data was retrieved from the World Development Indicators (WDI) database as main sources from 2015 to 2019. 20 countries from developed and developing countries were selected with a similar frequency of minimum wage determination which is monthly rate. The results shows that, there are different impact of minimum wage on economic growth in developed and developing countries, where the implementation of the minimum wage has a direct and long term impact on the developed countries, as it has a positive impact on the economic growth. Based on this empirical data, it appears that not all economic conditions during a recession, such as growth, employment and unemployment, would improve as an implementation of minimum wage, due to uncertain effects.

**Keywords** Minimum wages · Developed countries · Developing countries

## 1 Introduction

Economic growth and minimum wages are among the most important issues in the field of economics. In the past decades, economics research on the minimum wage Neumark and Wascher (2008) conclude for the least-skilled workers and increases

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N. M. Yusoff (✉) · N. Nordin · N. Nordin  
Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Kelantan, Malaysia  
e-mail: [nurza.a18e025f@siswa.umk.edu.my](mailto:nurza.a18e025f@siswa.umk.edu.my)

N. Nordin  
e-mail: [naddia.n@umk.edu.my](mailto:naddia.n@umk.edu.my)

N. Nordin  
e-mail: [haiza@umk.edu.my](mailto:haiza@umk.edu.my)

in the minimum wage will reduce job opportunities. However, this minimum wage policy tools is still debatable among the scholars regarding the effectiveness of minimum wage. As demonstrated by Stigler (1946) and Abd Karim et al. (2016) minimum wage concluded that if miscalculate the minimum wage and it pegged above the market wage, it will reduce employment, increase an unemployment rate, cause to increase in price level that increase inflation rate, reduced profit for firms, will affected workers in uncovered sector that will paid at lowest wage rate, and cause the loss efficiency.

The topic of minimum wage is frequently discussed, reviewed and debated on the economic impact to the labor market, particularly on the topic of labor and unemployment in industries (Brown 1999; Card, 1991; Katz and Krueger 1992; Meer and West 2013; Schmitt 2013). Recent research has shown that unemployment rates are growing as a result of the introduction of minimum wage between sectors (Neumark 2014; Neumark and Wascher 2000). Since this policy has been introduced in more than 150 countries, the question “Is the minimum wage successful in achieving its goals of increasing workers’ lives, reducing poverty, reducing organizational disparity, increasing productivity and motivating companies to become more competitive (Schulten 2010; Abdo Alaghbari et al. 2021; Hasan Al-Naser 2019; Ali et al. 2018)” It remains a major problem for researchers and policy-makers since its implementation.

Despite studies, discussions, and numerous debates about minimum wages, empirical studies on the impact of minimum wages remain scarce, particularly studies focusing on the impact of minimum wages on developed and developing countries. These findings and assumptions necessitate further research into the effectiveness and impact of implementing a minimum wage in developed and developing countries.

This paper is divided into four parts. Section 2 provides a review of the related literature, with a focus on the impact of the minimum wage on economic growth. Section 3 describes the research methodology as well as the data sources used in this study. Section 4 presents the estimation results, and Sect. 5 concludes by discussing the study’s results implications.

## 2 Literature Review

A global recession is a prolonged period of economic downturn throughout the world. The world’s most economically vulnerable developed countries have had a particularly difficult time recently. The effects of the 2008 financial crisis are still being felt in Greece. Falling oil prices have hit Russia and Venezuela particularly hard. Among the most significant social consequences of the crisis have been increased unemployment, income loss, and increased vulnerability. The impact of the minimum wage on the economy is only marginal. In the real world, it has increased by almost 2% annually since 2011 without causing inflation or unemployment.

However most of the young, unskilled workers were affected by the implementation (Wellington 1991), the explanation was that the productivity of this type of



worker was poor. To ensure that the requirements of the company are met, the training of workers must be enforced; at the same time, however, companies were unable to provide training because of a financial crisis redirected to the minimum wage workers (Acemoglu and Pischke 1999; Hashimoto 1982). Employers have begun decreasing young and unskilled workers to deal with the problem (Neumark 2014). According to Mao (2012), the introduction of Minimum Wage among young workers has led to a slight negative job. A based analysis by Schmitt (2013) from countries in Canada, the United States and Europe found that more than 85% had a negative impact on the employment of mostly unskilled employees.

On the other hand, the United States practices the variation of the minimum wage at the state level; while the United Kingdom applies only one minimum wage enacted in 1999, it found zero effect on employment. A research performed by Card and Krueger (1993) explicitly on employment effects based on the increase in minimum wage between two states showed a negative impact on employment. It is clear that the minimum wage in Canada, the USA, Europe and Asia has been well studied, especially on the effect on employment.

Research about minimum wage more focus in developed countries compare to developing countries. The main reason is, some of the economic sectors in developing countries are not obligated to follows the minimum wage regulation. Recently, the study on minimum wage among economists is emergent to present new empirical evidence. In developing countries, a large proportion of workers is outside the umbrella of minimum wage legislation, Lemos (2009). Thus, it becomes interesting research to explore the results.

Del Carpio et al. (2014) choose Thailand in their study and found that the minimum wage decreases the probability that older employees and women will be working, but in a limited amount. A minimum wage is the lowest hourly, regular or monthly remuneration that employers in different industries can legally pay to some employees. However, Del Carpio et al. (2014) found that less research on the effect of minimum wage on future employment in South East Asia in particular in Malaysia.

The result of a study in Vietnam shows an adverse impact of minimum wage on employment, wages and welfare (Del Caprio et al. 2013). The study finds that minimum wage rises reduce the total number of wage workers especially in the domestic firms and increase self-employment. The number of wage workers declines because many workers with informal contracts lose their jobs. The profile of workers who earn below the minimum wages find that they tend to be young, relatively uneducated and of ethnic minorities.

Past study had shown a strength and weakness of the empirical work used in order to examine minimum wage especially in developing countries due to the robust findings. Thus, further research on the estimation of minimum wage on developing countries should conducted.

### 3 Methodology

In order to analyse the impact of minimum wage on economic growth in developed and developing countries, ordinary least square (OLS) analysis was employed. This econometrics method is used to identify the relationship between economic growth and minimum wage. This method was employed in this study because the technique is the simplest in terms of estimation procedure. The growth model adopted from the framework introduced by Mankiw et al. (1992). Equation (1) provides the basic econometric model, which states that GDP is a function of minimum wage and other explanatory variables. The model can be expressed as follows:

$$GDP_{it} = \alpha + \beta_1 MW_{it} + \beta_2 X_{it} + \varepsilon_{it} \quad (1)$$

where GDP is a growth rate, MW is a minimum wage, X is an explanatory variable. In order to estimate Eq. (1) the first step is examining the stationary test of the variables. Second step is using OLS approach to estimate the growth model and finally in order to determine the accurate estimation of OLS model, the diagnostic checking was employed.

The data set consists of selected developed and developing countries based on the availability of data set. Annual data on GDP growth rate, employment, unemployment and labour force participation rate. Data are collected from World Development Indicators. Minimum wage is constructed based on the converting value of minimum wage to monthly estimates because different countries have a different benchmark of the minimum wage (i.e.: United States and United Kingdom set in hours, Mexico and Myanmar is set per day's work, Malaysia, and Indonesia set at monthly rate).

## 4 Results and Discussion

The results on examining the impact of minimum wage on economic growth are present in this section. The empirical analysis is based on 20 selected developed and developing countries over the 2015–2019 periods. Tables 1, 2, 3, 4, 5, 6, 7 and 8 present the estimation results on the developed countries.

### 4.1 Empirical Analysis on Developed Countries

The summary of statistics present in Table 1 and Table 2 show the correlation analysis, respectively. For the descriptive, the first estimation variable of economic growth shows the mean value is 2.7189. Romania has recorded the maximum growth rate with 7.3194. Meanwhile, the mean value for second variable, employment is 3.9879 with a standard deviation of 0.0112. The highest value for employment rate is

**Table 1** The descriptive statistics of developed countries

| Variable | Mean   | Standard deviation | Minimum | Maximum |
|----------|--------|--------------------|---------|---------|
| GROWTH   | 2.7189 | 0.1857             | 0.5554  | 7.3194  |
| EMP      | 3.9879 | 0.0112             | 3.8907  | 4.1284  |
| UNM      | 1.8567 | 0.0681             | 1.1442  | 3.0937  |
| LFPR     | 4.2845 | 0.0078             | 4.1826  | 4.3937  |
| MW       | 7.2072 | 0.0504             | 6.3787  | 7.7186  |

Notes: GROWTH = output growth per capita, EMP = employment rate, UNM = unemployment rate; LFPR = labour force participation rate and MW = minimum wage; all the values are in the logarithm form

**Table 2** Correlation matrix

|        | GROWTH  | EMP     | UNM     | LFPR   | MW |
|--------|---------|---------|---------|--------|----|
| GROWTH | 1       |         |         |        |    |
| EMP    | -0.0682 | 1       |         |        |    |
| UNM    | -0.3994 | -0.0062 | 1       |        |    |
| LFPR   | -0.0980 | -0.7276 | 0.5682  | 1      |    |
| MW     | 0.17335 | -0.5997 | -0.2348 | 0.2587 | 1  |

Notes: GROWTH = output growth per capita, EMP = employment rate, UNM = unemployment rate; LFPR = labour force participation rate and MW = minimum wage; all the values are in the logarithm form

Netherlands with 4.1284 and the minimum value is 3.8907 for Spain. The mean of unemployment is 1.8567 with a standard deviation of 0.0681, and it ranges from 1.1442 (Germany) to 3.0937 (Spain). For the labour force participation rate, the mean is 4.2845. The highest value is 4.3937 (Netherlands) and the lowest is 4.1826 (Romania). In the case of minimum wage, the mean and standard deviation are 7.2072 and 0.0504, respectively. It ranges from 6.3787 (Portugal) to 7.7186 (Poland).

The estimation of correlation analysis are reported in Table 2 for all variables used in this analysis. From the estimation, variables that indicate negative correlations with GDP growth are employment, unemployment and labour force participation rate. The other interest variable minimum wage indicate positive correlations with output growth.

The next step of estimation is using simple linear model as shown in Eq. (1). The estimation results show in Table 3. The results indicates in developed countries that there is direct impact of employment on growth rate and this result is consistent with Khan (2020), Kapsos (2005), Basnett and Sen (2013), with 0.1709 significant at 10 percent significant level, which this results indicate that employment contributing 17.09 percent to the output growth. The estimated coefficient on unemployment rate also indicates significant and has a direct impact on economic growth. According to Soylyu et al. (2018) unemployment is positively affected by economic growth and

study by Zagler (2003) stated that in long run there is positive relationship between these variable.

Another key variable in our model is minimum wage which is found has a direct effect with the value is positive and significant at the 10 percent level. This indicates that an increase in minimum wage rate it will promote output growth in developed countries and this is consistent with the findings in Sunarsih et al. (2019) where they stated that in Indonesia minimum wage has significant impact on economic growth.

The estimated coefficient on labor force participation rate indicates a negative and significant relationship with economic growth in developed countries. This result is inconsistent with the past studies, and only in line with Clark et al. (1999).

Table 4 report the result the linear interaction model with the estimation of interaction term between MW x EMP. The interaction term were employed to examine does minimum wage play a moderating role on employment on economic growth in developed countries. The result show that the coefficient on MW x EMP is highly

**Table 3** Results of linear estimation model for developed countries

|                       | Coefficient | s.e      | t-stat   |
|-----------------------|-------------|----------|----------|
| EMP                   | 0.1709*     | 0.103132 | 1.657786 |
| UNM                   | 0.1399*     | 0.0953   | 1.469032 |
| LFPR                  | -0.2151***  | 0.07456  | -2.88494 |
| MW                    | 0.0005*     | 0.000509 | 1.148623 |
| Constant              | 7.2495*     | 4.139992 | 1.751108 |
| Multiple $R^2$        | 0.4762      |          |          |
| Number of observation | 250         |          |          |

Notes: GROWTH = output growth per capita, EMP = employment rate, UNM = unemployment rate; LFPR = labour force participation rate and MW = minimum wage; all the values are in the logarithm form

**Table 4** Results of linear interaction model in developed countries

|                       | Coefficient  | s.e      | t-stat   |
|-----------------------|--------------|----------|----------|
| EMP                   | -0.846612*** | 21.9687  | -3.85372 |
| UNM                   | -0.26794***  | 0.266844 | -1.00411 |
| LFPR                  | -0.649016    | 1.639276 | -3.95916 |
| MW                    | -0.483074*** | 12.28866 | -3.93105 |
| $MW \times EMP$       | 0.120744***  | 3.075945 | 3.925427 |
| Constant              | 7.8715***    | 90.89065 | 4.047408 |
| Multiple $R^2$        | 0.5998       |          |          |
| Number of observation | 250          |          |          |

Notes: GROWTH = output growth per capita, EMP = employment rate, UNM = unemployment rate; LFPR = labour force participation rate, MW = minimum wage

significance at 1 percent significant level. This is strongly provide a justification that, in developed countries minimum wage able to moderate the impact of employment on economic growth.

Thus, in developed countries, minimum wage indicates a positive and significant impact on economic growth and able to moderate the impact of employment on economic growth.

### 4.2 Empirical Analysis on Developing Countries

The next step of analysis is to examine the impact of minimum wage on economic growth in developing countries. Table 5, 6 and 7 shows the estimation analysis. Table 5 shows the descriptive analysis. The mean value for output growth is 4.7201 with a maximum growth rate was recorded for Tajikistan (7.6174). The mean of employment rate is 3.9860, where the highest was recorded for by Peru. The mean of unemployment is 1.856 and it ranges from 1.0986 (Turkey) to 2.9428 (Armenia). The mean value of labour force participation rate is 4.1538 with the highest value is 4.3949 (Peru). Lastly the interest variable of this study, minimum wage with the mean (8.3403) and it ranges from 5.5214 (Tajikistan) to 12.6415 (Costa Rica).

Estimation results for correlation shows that only minimum wage show a positive relationship with economic growth, and the other three variables indicate negative relationship on economic growth in developing countries. This estimation results is similar with the findings for developed countries in Table 6.

In order to indicate the effect of minimum wage on economic growth, the linear estimation analysis were conducted. As shown in Table 7, the coefficient of minimum wage shows negative with a weak significant level. Thus, in developing countries minimum wage indicates negative impact on economic growth, where if firms and employers force to follow the minimum wage regulation, they will reduce the number of employment which reduce the country national income that directly will reduce the economic growth. This situation is different in the developed countries, as firms

**Table 5** Results of descriptive statistics for developing countries

| Variable | Mean   | Standard deviation | Minimum | Maximum |
|----------|--------|--------------------|---------|---------|
| GROWTH   | 4.7201 | 0.2733             | 0.2     | 7.6174  |
| EMP      | 3.9860 | 0.0296             | 3.6119  | 4.3241  |
| UNM      | 1.8560 | 0.0779             | 1.0986  | 2.9428  |
| LFPR     | 4.1538 | 0.0285             | 3.7249  | 4.3949  |
| MW       | 8.3403 | 0.3153             | 5.5214  | 12.6415 |

Notes: GROWTH = output growth per capita, EMP = employment rate, UNM = unemployment rate; LFPR = labour force participation rate and MW = minimum wage; all the values are in the logarithm form

**Table 6** Results of correlation matrix for developing countries

|        | GROWTH   | EMP      | UNM      | LFPR     | MW |
|--------|----------|----------|----------|----------|----|
| GROWTH | 1        |          |          |          |    |
| EMP    | -0.09805 | 1        |          |          |    |
| UNM    | -0.0682  | -0.7276  | 1        |          |    |
| LFPR   | -0.39948 | 0.568294 | -0.00626 | 1        |    |
| MW     | 0.23714  | 0.235383 | -0.57796 | -0.25317 | 1  |

Notes: GROWTH = output growth per capita, EMP = employment rate, UNM = unemployment rate; LFPR = labour force participation rate and MW = minimum wage; all the values are in the logarithm form

**Table 7** Results of linear estimation model for developing countries

|                       | Coefficient | s.e      | t-stat   |
|-----------------------|-------------|----------|----------|
| EMP                   | 0.0712*     | 0.039612 | 1.797414 |
| UNM                   | 0.039172    | 0.064596 | 0.606416 |
| LFPR                  | -0.12647*** | 0.034074 | -3.71173 |
| MW                    | -4.8E-06*   | 2.88E-06 | -1.66407 |
| Constant              | 8.9139***   | 1.632645 | 5.459824 |
| Multiple $R^2$        | 0.5686      |          |          |
| Number of observation | 250         |          |          |

Notes: GROWTH = output growth per capita, EMP = employment rate, UNM = unemployment rate; LFPR = labour force participation rate and MW = minimum wage; all the values are in the logarithm form

**Table 8** Results of linear interaction model in developing countries

|                       | Coefficient | s.e      | t-stat   |
|-----------------------|-------------|----------|----------|
| EMP                   | 0.1211*     | 6.995703 | 1.731818 |
| UNM                   | 0.0789      | 0.644231 | 0.122528 |
| LFPR                  | -0.0781***  | 1.911761 | -4.08765 |
| MW                    | 0.0438      | 3.464796 | 1.264813 |
| $EMP \times MW$       | -0.11412    | 0.870945 | -1.31034 |
| Constant              | -9.9522     | 25.48108 | -0.39057 |
| Multiple $R^2$        | 0.5800      |          |          |
| Number of observation |             |          |          |

Notes: GROWTH = output growth per capita, EMP = employment rate, UNM = unemployment rate; LFPR = labour force participation rate and MW = minimum wage; all the values are in the logarithm form

in developed countries is already well established and they are able to strictly follow the minimum wage regulation.

Table 8 shows the estimation result of the interaction estimation analysis. In this model, an interaction term  $MW \times EMP$  is added to examine the role of minimum wage through employment effect on economic growth in developing countries. Based on the estimation results, the coefficient value of interaction term between  $MW \times EMP$  indicates insignificance. Thus, we can conclude that the role of minimum wage in moderating the impact of employment on growth in developing countries should be denied.

## 5 Conclusion

The main result is derived from regression analysis on 20 selected developed and developing countries over the 2015–2019 periods. The results have a different impact on economic growth in developed and developing countries, and the implementation of the minimum wage has a long-term impact on the country's economy, as it has a positive impact on the economic growth in developed countries. However, results show that, in developing countries, there is a negative impact on economic growth, consistent with previous studies on developing countries, which found that instituting a minimum wage had either a negative or positive effect on economic growth. However, based on previous research, empirical evidence suggests that not all economic factors, such as growth, poverty, unemployment, and productivity, will benefit from the implementation of the minimum wage, because there are ambiguous effects of the implication of minimum wage stated by the past literatures.

As a result, additional research using a different methodology is required to explain the ambiguous effects. The limitations of this study are that it only examines four economic factors. Perhaps more economic factors can be considered in future reviews or studies.

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# Assessing the Spillovers Effect of Infrastructure and Innovation on Economic Growth



Nurnaddia Nordin , Nurhaiza Nordin , Nur Ilyana Amiiraa Nordin, and Nur Faiz Nordin

**Abstract** Infrastructure and innovation have become a key elements of sustainable long-run economic growth and had been explained in endogenous growth theory. The analysis draws of infrastructure quality and innovation data for ten countries. The estimation data is from 2008 to 2020. The empirical analysis involved the estimation of the cointegration test, dynamic OLS, and long-run estimation coefficient. The finding shows that the spillover effects of infrastructure indicate the highest effect on long-run economic growth, but the effect of innovation could not be denied due to a positive and significant coefficient. Thus, government and policymakers should play a significant role in developing infrastructure to sustain economic growth.

**Keywords** Spillovers · Infrastructure · Innovation · Growth

## 1 Introduction

The spillover effects of infrastructure and innovation are vital elements of present economic growth. Economists called infrastructure or physical infrastructure is referred to infrastructure capital. Physical infrastructure is divided into two categories, economic infrastructure and, social infrastructure. Pioneer economist (Murphy et al. 1989) had listed an economic infrastructure is refer to telecommunications, road, electricity, and irrigation and social infrastructure refer to the sewage system, hospitals, and school facilities. The development of infrastructure capital had improved long term economic growth that started in endogenous growth theory (Barro 1990) and in the second waves of endogenous growth model, Romer (1990), Gross and Helpman (1991), and Aghion and Howitt (1992) had explained technology

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N. Nordin (✉) · N. Nordin  
University Malaysia Kelantan, Kota Bharu, Malaysia  
e-mail: [naddia.n@umk.edu.my](mailto:naddia.n@umk.edu.my)

N. Nordin  
e-mail: [haiza@umk.edu.my](mailto:haiza@umk.edu.my)

N. I. A. Nordin · N. F. Nordin  
Universiti Malaysia Kelantan, Kota Bharu, Malaysia

**Table 1** Top 10 innovation and Infrastructure ranking in the year 2020

| Country        | Innovation ranking | Infrastructure ranking | Country           | Innovation ranking | Infrastructure ranking |
|----------------|--------------------|------------------------|-------------------|--------------------|------------------------|
| Switzerland    | 1                  | 3                      | Denmark           | 6                  | 4                      |
| Sweden         | 2                  | 2                      | Finland           | 7                  | 8                      |
| United States  | 3                  | 24                     | Singapore         | 8                  | 13                     |
| United Kingdom | 4                  | 6                      | Germany           | 9                  | 12                     |
| Netherlands    | 5                  | 18                     | Republic of Korea | 10                 | 14                     |

(Source: World Intellectual Property Organization, 2021).

and innovation become one of the key components to sustaining economic growth. Innovation may affect the economy through infrastructure development. Thus, well-developed infrastructure has often been seen to attract foreign investors, attracting business activity, and increase productivity (Futagami et al. 1993) besides help to reduce the poverty rate (Loksin and Yemtsov 2005).

Therefore, infrastructure and innovation are seen to be complemented in promoting economic growth. However, the role of infrastructure and innovation on economic growth has received little attention among researchers. Although the growth model predicts that innovation activity becomes a vital element for productivity improvement, only a few rich countries are involved vigorously in innovation activities. In fact, that in the top 10 of innovation ranking in the world all of them are in high-income group and there are 8 developed countries listed (see Table 1). The eight developed countries are Switzerland, Sweden, United States, United Kingdom, Netherlands, Denmark, Finland, and Germany and this country is ranking amongst the 25<sup>th</sup> best quality of infrastructure. The ranking of innovation and infrastructure of countries in Table 1 is not much different except for the United States.

This suggests that for high-income countries, innovation and infrastructure become an element to support their productivity and to sustain economic growth and become one of the 17 goals in Sustainable Development Goal (SDG) that stated in SDG 9, Industry, Innovation and Infrastructure with the mission “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”. This SDG 9 has interlinkages especially with SDG 8 (Decent Work and Economic Growth).

Thu the main focus of this paper is to empirically examine the effect of infrastructure and innovation spillovers on economic growth in developed countries. Using Ordinary Least Square (OLS), the framework of this study used various indicators of innovation and infrastructure for countries listed in the top tenth in the year 2020. The estimation data examine for pooled data and panel data for the year 2008 to 2020 to provide a different finding analysis. The source of indicators of innovation and infrastructure are gathered from World Bank, Eurostat, UNESCO, International

Labor Organization (ILO), and Center of Economics and Business Research (CEBR) analysis.

The balance of this paper is organized as follows. Section 2 provides a discussion on the past literature. The model specification, data description, and econometric analysis used in the present study are discussed in Sect. 3. The details of the results and discussions are presented in Sect. 4. Finally, in Sect. 5 we present the conclusion, limitation of the study, policy recommendation, and recommendation for future study.

## 2 Literature Review

### 2.1 *Infrastructure and Growth*

The effect of infrastructure and economic growth received more consideration from past researchers. Recently Batool and Goldmann (2020) indicate that using VAR/VEC analysis, the development of transport infrastructure system provides a steady long-run relationship on economic growth in Pakistan. The transport infrastructure will promote economic growth by promoting the movement of goods. A study by (Onokala and Olajide 2020) infrastructure of the transportation system is essential for a country to achieve optimum economic development. Policy implementation is a method for implementation of government decisions to achieve the goal, study by Burinskiene and Rudzkiene (2009) have shown that the development of infrastructure is one of the elements in sustainable development policy, and they found that it has become one of the most element for sustainable and development of the country, which is supported by and Grundey (2008).

Another study had stated the bidirectional association between infrastructure and economic growth. In a study by Besley and Burgess (2003), they examine how much change in social infrastructure is required for poverty reduction in different economic regions and the world. Interestingly, their study indicated that for East Asia and Pacific region is about 114% reduce the poverty rate where there is a change in infrastructure. Thus, their findings provide evidence that infrastructure growth is likely to reduce poverty by enhancing growth which is a similar finding with Dollar and Kraay (2000), Ravallion (2001), and Sawada (2015).

Public infrastructure has become one of the sources of economic growth. In a study by Mamatzakis' (2008), the researcher stated that public infrastructure will help industries in saving costs and enhance the growth of productivity. In another similar study by Baldwin and Dixon (2008), the good development of Canada's Infrastructure will support economic growth. Sanchez Robles (1998) examine the cross-country analysis and found that there is a significant positive between infrastructure and economic growth. Devarajan et al. (1996), examines the government expenditure on economic growth in developing countries and found that allocation of expenditure on physical capital especially on infrastructure becomes a complement for private sector

productivity and hence has a favorable impact on economic growth in developing countries.

## 2.2 Innovation and Growth

As theoretically explained technology spillovers will support innovation activity and the development of innovation. Innovation is defined as an introduction to the market of a new, or significantly improved product, service or process. Innovation can be the result of new combinations of existing technology or the utilization of other knowledge acquired by the company or the new development in technology. Innovation is widely taken as a key factor that often attracts the attention of stakeholders. The importance of innovation was discussed by Tidd et al. (2002) mentioned that organizations must be innovative to be able to sustain the competitive market. According to Utterback (1994), innovation is like a life or death ‘ingredient’ of productivity in any firm. The innovation processes of creation, dissemination, and application of knowledge have become a major mechanism of economic growth.

Empirical studies on the role of innovation, such as Iwata et al. (2002), Nelson and Park (1999), Rhee et al. (2010), and Sarel (1997) determined that some Asian countries have thrived in mobilizing other powerful sources of growth, which contributed to their speedy catching-up process. Porter and Stern (2001) found that innovation is positively related to human capital in the R&D sector and the national knowledge stock. Hulya (2004) showed that innovation in both developed and developing countries have a positive effect on per capita output. However, by investing in R&D, the OECD countries promote their inventions by using the expertise of other OECD nations and can increase their innovation. According to Rosenberg (2004), investment in R&D is one of the sources of technological innovation which affects long-term economic growth.

## 3 Methodology

### 3.1 Model Specification

To examine the spillover effect of infrastructure and innovation on economic growth, this study employs the basic endogenous growth model,

$$Y = K^\alpha H^\beta A^{1-\alpha-\beta} L^{1-\alpha-\beta} \quad (1)$$

where  $Y$  is output,  $K$  is stock of physical capital,  $L$  is labor,  $H$  is stock of human capital,  $A$  is technology. To examine the impact of infrastructure and innovation on economic growth, we employed a similar growth model employed by Palei (2015)

and Devarajan et al. (1996). The model can be expressed as follows:

$$Y_{i,t} = \beta_0 + \beta_1 INF_{i,t} + \beta_2 INNO_{i,t} + \beta_3 X_{i,t} + \mu_{i,t} \quad (2)$$

where  $Y$  is economic growth,  $INF$  is an indicator of infrastructure,  $INNO$  is an indicator of innovation and  $X$  is a control variable. Equation (2) serves as a baseline model for estimation purposes.

### 3.2 Data Description and Econometric Analysis

The data set consists of observation for 10 high-income countries that listed is in the top 10<sup>th</sup> ranking of innovation in the year 2020 (Switzerland, Sweden, United States, United Kingdom, Netherlands, Denmark, Finland, Singapore, Germany, and the Republic of Korea). Data over 2008 to 2020 will be analyses as a pooled data and panel data. The dependent variable of the growth was defined as the real GDP in US\$ at the current time. The indicator of infrastructure is based on, (i) Overall quality of infrastructure; (ii) social infrastructure (Transportation infrastructure, Energy infrastructure, digital infrastructure), and (iii) economic infrastructure (Education infrastructure) which estimate in the different models. For innovation, the measurement is based on (i) Capacity of innovation, and (ii) Capability of innovation and (iii) technological readiness. The control variable is human capital. The main source of data is from The World Bank.

For the econometric analysis, we estimate panel data using Dynamic OLS as proposed by Pedroni (1999) Kao and Chiang (1999). According to Stock and Watson (1993), using Dynamic OLS will correct the standard pooled OLS for serial correlation and endogeneity of regressors that normally present in a long-run relationship. Data will test for unit root test and cointegration test.

## 4 Results and Discussion

The empirical analysis employed panel estimation of the data. The data involving ten countries that were listed in the top tenth innovation ranking for thirteen periods (2009–2020). Table 2 presents a summary of the descriptive statistics of variables used in the estimation.

The variables have been tested in panel unit root test (Levin, Lin, and Chu (LLC) and Im, Pesaran, and Shin (IPS)). The results indicated that at level, the null hypothesis cannot be rejected because the variable contains a unit root. Then, after testing at the first difference, all the variables become stationary and the null hypothesis can be rejected. Thus, conclusions were made that all the variables are integrated of order 1 or I(1). Thus, having established that all the variables are integrated at I(1), the next step of analysis of the cointegration tests was conducted. There are two cointegration

**Table 2** Descriptive statistic

|          | GDP     | QI     | QP     | QR     | QRR    | QAP    | QE     | CAPBI  | CAPCI  |
|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| Mean     | 12.0228 | 6.0535 | 5.9156 | 5.8673 | 5.4882 | 6.1614 | 6.5829 | 5.3109 | 5.3503 |
| Median   | 11.8754 | 6.0673 | 5.7904 | 5.8036 | 5.6387 | 6.1628 | 6.6870 | 5.3657 | 5.4750 |
| Maximum  | 13.3141 | 6.7720 | 6.8305 | 6.6612 | 6.8045 | 6.9070 | 6.9106 | 5.8381 | 6.1581 |
| Minimum  | 11.2869 | 4.9860 | 4.3825 | 5.1077 | 4.1106 | 5.4254 | 5.5379 | 4.6034 | 4.2573 |
| Std. Dev | 0.5525  | 0.4337 | 0.5742 | 0.4081 | 0.6280 | 0.3789 | 0.2718 | 0.3349 | 0.4709 |

Note: QI = total infrastructure quality, CAPCI = innovation capacity; CAPBI = innovation capability; QE=quality of electricity supply, QR = quality of roads infrastructure, QRR = quality of rail road’s infrastructure, QP = quality of port infrastructure, QAP = quality of air transport infrastructure, HC = human capital

test were examine Pedroni (1999) and Kao and Chiang (1999). In Pedroni analysis, there are seven test statistics were done based on cointegration within dimension and group mean panel. The result of the Pedroni cointegration test is present in Table 3.

Four models with different combinations of independent variables are estimated. The test results indicate that the null hypothesis of no cointegration can be rejected by panel PP statistics, panel ADF statistics, group PP statistics, and group ADF statistics. Therefore, it can be safely concluded that there is cointegration among the variables used in this analysis.

**Table 3** Results of Cointegration test based on Pedroni

| Test statistics  | Model 1             |                     | Model 2             |                      | Model 3             |                     | Model 4             |                     |
|------------------|---------------------|---------------------|---------------------|----------------------|---------------------|---------------------|---------------------|---------------------|
|                  | Intercept           | Intercept + Trend   | Intercept           | Intercept + Trend    | Intercept           | Intercept + Trend   | Intercept           | Intercept + Trend   |
| $Z_V$            | 0.1575<br>(0.6965)  | -0.9847<br>(0.9647) | -1.3489<br>(0.9599) | -1.6417<br>(0.9699)  | -0.1546<br>(0.7921) | -0.3090<br>(0.8998) | -0.6511<br>(0.9020) | -1.2339<br>(0.9129) |
| $Z_\rho$         | 0.9430<br>(0.7747)  | 2.3450<br>(0.9854)  | 3.6051<br>(0.9999)  | 4.7896<br>(1.0000)   | 1.2573<br>(0.8967)  | 2.1316<br>(0.9934)  | 2.0982<br>(0.9754)  | 2.9292<br>(0.8743)  |
| $Z_t$            | -3.5684<br>(0.0001) | -2.8392<br>(0.0005) | -5.4784<br>(0.0000) | -6.6291<br>(0.0000)  | -3.7249<br>(0.0007) | -5.5113<br>(0.0000) | -4.4691<br>(0.0000) | -5.2726<br>(0.0000) |
| $Z_t^*$          | 2.3552<br>(0.0000)  | -3.0345<br>(0.0000) | -1.1881<br>(0.1204) | NA<br>NA             | -3.7175<br>(0.0005) | -2.7194<br>(0.0061) | -2.5016<br>(0.0001) | -2.7418<br>(0.0000) |
| $\tilde{z}_\rho$ | -4.5237<br>(0.9907) | 3.4548<br>(0.9997)  | 4.9376<br>(0.9999)  | 5.6130<br>(1.0000)   | 2.6004<br>(0.9953)  | 3.4287<br>(0.9997)  | 3.3645<br>(0.9996)  | 3.9580<br>(0.9845)  |
| $\tilde{z}_t$    | -3.6910<br>(0.0000) | -5.0036<br>(0.0000) | -9.3526<br>(0.0000) | -16.5193<br>(0.0000) | -6.1349<br>(0.0000) | -5.9890<br>(0.0000) | -6.0030<br>(0.0000) | -15.234<br>(0.0000) |

Note: Figures in parentheses are p-values. Optimal lag lengths were selected based on AIC.  $Z_V$  = panel v-statistic,  $Z_\rho$  = panel  $\rho$ -statistic,  $Z_t$  = panel t-statistic,  $Z_t^*$  = group t-statistics (non-parametric),  $\tilde{z}_\rho$  = group  $\rho$ -statistic,  $\tilde{z}_t^*$  = group t-statistics (parametric).

**Table 4** Results of cointegration test based on Kao and Chiang (1999)

|                 | Model 1             | Model 2             | Model 3            | Model 4            |
|-----------------|---------------------|---------------------|--------------------|--------------------|
| Test statistics |                     |                     |                    |                    |
| ADF             | -3.8880<br>(0.0001) | -3.8112<br>(0.0001) | -4.9565<br>(0.000) | -4.6451<br>(0.000) |

Note: Figures in parentheses are p-values

The variables have been tested in panel unit root test (Levin, Lin, and Chu (LLC) and Im, Pesaran, and Shin (IPS)). The results indicated that at level, the null hypothesis cannot be rejected because the variable contains a unit root. Then, after testing at the first difference, all the variables become stationary and the null hypothesis can be rejected. Thus, conclusions were made that all the variables are integrated of order 1 or  $I(1)$ . Thus, having established that all the variables are integrated at  $I(1)$ , the next step of analysis of the cointegration test was conducted. There are two cointegration tests were examined Pedroni (1999) and Kao and Chiang (1999). In Pedroni analysis, there are seven test statistics were done based on cointegration within dimension and group mean panel. The result of the Pedroni cointegration test is present in Table 3.

Four models with different combinations of independent variables are estimated. The test results indicate that the null hypothesis of no cointegration can be rejected by panel PP statistics, panel ADF statistics, group PP statistics, and group ADF statistics. Therefore, it can be safely concluded that there is cointegration among the variables used in this analysis.

Cointegration test as suggested by Kao and Chiang (1999) is employed to provide further support to the result obtained using the Pedroni cointegration test. The results of the test are reported in Table 4. The results show that there is strong evidence to support the conclusion made earlier as the null of no cointegration can be rejected at the 1 percent level in all estimation models.

Having established that the variables are integrated of order one  $I(1)$  and cointegrated, the next step is to examine the long-run relationship between variables using a dynamic OLS estimator. The results of estimating the baseline model which includes all variables are reported in Table 5. The results show that the overall infrastructure quality plays a significant role in economic growth with the coefficient value of 0.0308 and innovation capacity also provides a positive and significant at 10 percent significant level on economic growth. This finding is consistent with Batool and Goldmann (2020). The estimated elasticities for capacity of innovation is 0.0276 which suggests that a 1% increase in innovation will result in an increase of 0.0276% of the economic group for these countries group. This finding is similar to Hulya (2004). For infrastructure indicators, only quality of air transport infrastructure shows a positive and significant with 5% significant level which is consistent with Aminova and Marchi (2021), Awadh and Alareeni (2018) and Onokala and Olajide (2020) that explains the importance of infrastructure for transportation system on economic growth.

**Table 5** Result of dynamic OLS estimation

| Variable           | Coefficient | p-value |
|--------------------|-------------|---------|
| QI                 | 0.0308      | 0.0196  |
| QR                 | -0.1057     | 0.0200  |
| QRR                | 0.0257      | 0.4015  |
| QP                 | 0.0245      | 0.4510  |
| QAP                | 0.1065      | 0.0168  |
| QE                 | -0.0396     | 0.3307  |
| CAPCI              | 0.0276      | 0.0640  |
| CAPBI              | -0.0338     | 0.3563  |
| HC                 | 9.4996      | 0.0000  |
| R-squared          | 0.9960      |         |
| S.E. of regression | 0.0380      |         |
| Long-run variance  | 0.0018      |         |

Note: QI = total infrastructure quality, CAPCI = innovation capacity; CAPBI = innovation capability; QE = quality of electricity supply, QR = quality of roads infrastructure, QRR = quality of rail road's infrastructure, QP = quality of port infrastructure, QAP = quality of air transport infrastructure, HC = human capital

The next step of analysis is to examine the spillovers effects of infrastructure and innovation on economic growth. By examining the long-run coefficient and support with the value of marginal effect, the result of the four estimation models reports in Table 6. The result for model 1 indicates that between total infrastructure quality and innovation capacity, both variables indicate a positive and highly significant impact on economic growth. However, having testing on marginal effects as proposed by Brambor et al. (2006), spillovers effect of quality of infrastructure indicate higher marginal value than innovation. Thus, for this model, conclude that infrastructure becomes a vital factor in economic growth. The second model examines the long-run effects of different indicators of infrastructure on economic growth (quality of electricity supply, quality of roads infrastructure, quality of rail road's infrastructure, quality of port infrastructure, and quality of air transport infrastructure. Results show that the quality of air transport infrastructure remains positive and significant impact on economic growth that similar to estimation using Dynamic OLS as reported in Table 5. The marginal effects also indicate that higher effect of quality air transport infrastructure compares to the others. Estimation for model 3 is between innovation capacity and innovation capability. Both indicate a positive and significant impact on long-run economic growth, however, the spillovers effect of innovation capability indicates a higher marginal effect than innovation capacity on economic growth. Thus, we can conclude that for these tenth countries, their innovation capability plays an important role in influencing economic growth. The last estimation model (model 4) is examining the spillover effects among infrastructure and innovation on



**Table 6** Estimate of long run coefficients

|                                      | Model 1            | Model 2             | Model 3            | Model 4            |
|--------------------------------------|--------------------|---------------------|--------------------|--------------------|
| <i>QI</i>                            | 0.0306<br>(0.0002) |                     |                    | 0.0400<br>(0.0000) |
| <i>CAPCI</i>                         | 0.0306<br>(0.0000) |                     | 0.0197<br>(0.0037) | 0.0271<br>(0.0008) |
| <i>CAPBI</i>                         |                    |                     | 0.0549<br>(0.0000) | 0.0296<br>(0.0478) |
| <i>HC</i>                            | 4.9868<br>(0.0000) | 4.9564<br>(0.0000)  | 1.3741<br>(0.0385) | 2.9876<br>(0.0003) |
| <i>QE</i>                            |                    | -0.0005<br>(0.9722) |                    |                    |
| <i>QP</i>                            |                    | 0.0142<br>(0.1550)  |                    |                    |
| <i>QR</i>                            |                    | -0.0364<br>(0.0066) |                    |                    |
| <i>QRR</i>                           |                    | 0.0078<br>(0.5077)  |                    |                    |
| <i>QAP</i>                           |                    | 0.0449<br>(0.0007)  |                    |                    |
| <i>Marginal effects (mean value)</i> |                    |                     |                    |                    |
| <i>QI</i>                            | 0.3704             |                     |                    | 0.4842             |
| <i>CAPCI</i>                         | 0.3274             |                     | 0.2108             | 0.3167             |
| <i>CAPBI</i>                         |                    |                     | 0.5831             | 0.3144             |
| <i>QE</i>                            |                    | -0.0065             |                    |                    |
| <i>QP</i>                            |                    | 0.1869              |                    |                    |
| <i>QR</i>                            |                    | -0.4271             |                    |                    |
| <i>QRR</i>                           |                    | 0.0856              |                    |                    |
| <i>QAP</i>                           |                    | 0.5532              |                    |                    |

Note: *QI* = total infrastructure quality, *CAPCI* = innovation capacity; *CAPBI* = innovation capability; *QE* = quality of electricity supply, *QR* = quality of roads infrastructure, *QRR*=quality of railroads infrastructure, *QP* = quality of port infrastructure, *QAP* = quality of air transport infrastructure, *HC* = human capital

economic growth. The difference between Model 4 and Model 1 is, in this estimation, we include innovation capability, as we find it becomes vital in influencing long-run economic growth in Model 3. The results show that infrastructure is a positive and significant impact on long-run economic growth same with innovation capacity and innovation capability that consistent with a study by Kurniawati (2020). The coefficient value of infrastructure is (0.04) which is higher than innovation capacity (0.0271) and innovation capability (0.0296). As we calculate the marginal effect, the importance of infrastructure remains unchanged as previous findings, which is consistent with finding by Khan et al. (2020) and Ahmed et al. (2020).

Thus, based on this finding, we can conclude that the spillover effect of infrastructure highly impacts economic growth compared to the spillover effect from innovation. However, we should not neglect the role of innovation because the empirical finding indicates there is a positive and significant impact on economic growth but with a slightly lower coefficient value than infrastructure. Thus, this finding provides support to a new growth theory that, besides infrastructure (physical capital) as mentioned by Barro (1990), innovation has become one of the key components to sustaining economic growth. Romer (1990), Grossman and Helpman (1991) and Aghion and Howitt (1992).

## 5 Conclusion

The issue of economic growth has become the most important economic issue and has been widely explored by researchers. This issue has been examined extensively using many different methodologies. Over the years, economists have been looking into factors that influence growth and inquire on policies that are required for nations to maintain and promote sustained output growth. The empirical literature has shown that there are more than sixty different factors that explain how to sustain economic growth. Among these factors, infrastructure and innovation appeared to be important determinants for economic growth. By examining the 10<sup>th</sup> countries that are listed with the highest ranking of innovation by the Global Competitiveness Index (2020), we estimate panel data from 2008 to 2020 using dynamic OLS estimation methods. The finding indicates that the spillover effect of infrastructure on long-run economic growth is higher than the spillover effect of innovation. However, we do not deny the importance of innovation on economic growth as the coefficient value indicates positive and significance. Thus, our finding provides a new empirical finding that, although this country is listed in the top ranking of innovation in the world, the role of infrastructure becomes a vital element in economic growth. This finding also supports the new endogenous growth theory of the importance of infrastructure and innovation in the growth model. Therefore, policymakers and government should give more attention to the development of country infrastructure (economic infrastructure and social infrastructure) by increasing the government expenditure on infrastructure by enforcing expansionary fiscal policy. The limitation of this study is the availability of long-term data series for all the countries. The current empirical analysis only focused on 10 countries for only 13 years. For future research can extend this analysis to developed and developing countries or analyses on a country-specific basis to capture the precise implication of infrastructure and innovation on economic growth.

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# The Impact of Political Stability and Macroeconomic Variables on Foreign Direct Investment in Turkey



Mohammad Khudari , Noraina Mazuin Sapuan ,  
and Mohammed Ammeen Fadhil

**Abstract** Foreign direct investment (FDI) is one of the most practical types of foreign investment. FDI contributes to job creation, foreign exchange earnings and national income escalation, improving semi-skill and skilled labor. Based on our knowledge, this paper is the first study attempting to investigate the effect of political stability on the FDI in Turkey using an econometric approach. Achieving this objective, a co-integration analysis was conducted between the FDI and its determinants in the short-run and long-run including “macroeconomic indicators” and “Political Stability (PS)” in Turkey. Using annual data from 1974 to 2017 via Auto-Regressive Distributed Lag (ARDL) model. The results confirm the positive correlation between Gross Domestic Product (GDP), openness, domestic savings and political stability and FDI inflows. They also confirm the negative impact of energy consumption, population and inflation on FDI inflows.

**Keywords** Foreign direct investment (FDI) · Political stability · Turkish economy · Auto-regressive distributed lag (ARDL)

## 1 Introduction

Turkey has been aggressively pursuing FDIs to boost its economy over the past decades, by rising the share of global FDI inwards. The country has implemented economic reform since the early 1980s and opened its borders to the rest of the world in order to draw foreign investors (Cheng et al. 2017). Turkey is geographically

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M. Khudari (✉) · M. A. Fadhil  
College of Graduate Studies, Universiti Tenaga Nasional, Jalan IKRAM-UNITEN, 43000 Kajang,  
Selangor, Malaysia  
e-mail: [khudari@uniten.edu.my](mailto:khudari@uniten.edu.my)

N. M. Sapuan  
Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26700  
Gambang, Malaysia

M. A. Fadhil  
College of Administration and Economics, University of Baghdad, Baghdad, Iraq

located at the intersection of Western Asia and South-East Europe—the crossroad among Armenia, Azerbaijan, Bulgaria, Greece, Georgia, Iran, Iraq and Syria.

One of the vital variables that can influence FDI in Turkey is political risk. Political risk refers to the possibility of uncertainty that exists in the government sector due to low institutional performance, high bureaucratic corruption, internal and external conflicts, democratic unaccountability and distortions of business performance. Gokmenoglu et al. (2018) discovered the political soundness and institutional efficiency of the investing nations as essential considerations for understanding the multinational companies (MNC) reasons for investment abroad.

Concerning Turkish politics, history shows that this country took the opportunity to expand its historical sphere after the end of the Cold War and developed political and economic relations with Central Asia, which, in fact, was also the best advantage as it has a close relationship with US and European economies and limiting the Russia and Iran's political impact (Adamoglou and Kyrkilis 2018). Turkey has some similar cultures and was indirectly influenced by Western powers (the US, France and Germany) which have similar political environments, economic and social systems. Multinational companies (MNCs) from the aforementioned countries would have a greater understanding of the Turkish institutional environment and thus have a higher level of investment responsiveness (Makino and Tsang 2011). As a consequence, the major industrialized economies have supported the Turkish economy in maintaining a stable political situation. The political situation in Turkey, however, is currently experiencing enormous changes and conflicts, making it a significant feature to analyse its effect on FDI in the Turkish economy. There is a substantial lack of studies on the relationship between the FDI and the situation of political stability in Turkey to date. Additionally, this study is important as in the authors' knowledge, this paper is the first study attempting to investigate the effect of political stability on the FDI in Turkey using time series data.

Hence, this study aims to evaluate the impact of political stability in Turkey as well as other macroeconomic variables on FDI in the long-run and short-run.

This research is ordered as follows. Section 2 argues the literature on factors of FDI and their impacts. The data collection and methodology are provided in Sect. 3. Section 4 shows empirical findings followed by a conclusion in Sect. 5.

## 2 Literature Review

### 2.1 FDI and Economic Growth

FDI has become one of the most popular and desirable tools for promoting the economies of developing and underdeveloped countries and a preferred medium for entering and integrating world markets into the global economy. FDI inflows have become an important indicator for economic growth, proving the contribution of

foreign investments through FDI is a sign of the improvement in business performance and economic soundness. As a consequence, FDI has become a dynamic element in most of the economic strategies put forward by countries (Khudari 2019). Moreover, Sapuan and Roly (2021) revealed FDI can contribute to new investment, improve managerial skills and facilitate transfer of technology, increase the productivity of labor and enhance economic growth.

Filippaios et al. (2019) discovered that FDI in developed economies has risen by 17% annually over the last two decades. FDI can trigger economic growth through a variety of channels. First, FDI accumulates the country's total domestic capital stock, leading to an increase in total production. Second, the Multi-National Companies (MNC) with advanced R&D activities able to increase production efficiency (Fuqian et al. 2017). This effect has proved that FDI can encourage economic growth (Sapuan et al. 2020; Gunby Jin et al. 2017).

## 2.2 *FDI and Political Stability*

The studies on FDI and political stability have captured the eyes of current scholars. Recent studies by Bitar et al. 2019; Bano et al. 2019; Buckley et al. 2020 and Yusof et al. (2020) on political instability towards FDI from various countries have shown the importance of this indicator to affect the performance of the country and its role to attract foreign investment. Moreover, there is an interconnection between economic and political stability. Firstly, the lower political stability linked to an uncertain political climate, and this will discourage investment and slowing the pace of economic growth. On the other hand, poor economic performance could lead to the collapse of the government institution and political unrest. This is in line with the finding from Sapuan & Roly (2020) whereby strengthening the institutional policies by improving good governance can help to improve transparency among institutions and reduce corruption and dishonesty related to the management of resource capital.

As the political instability associated with an unpredictable political climate may reduce the development of investment rate and economic growth and this may lead to government collapse (Alesina et al. 1996). Meanwhile, Durmaz (2017) has proved the link between democracy and FDI flows in Turkey. The empirical findings showed democracy has a significant positive effect on the flow of FDI in Turkey. The findings also show that FDI inflows would have spillover effects on the Turkish economy in the long run.

Yardimcioglu and Ilhan (2016) conducted a study to determine the causal relationship between economic growth and political stability in Turkey from 1980–2015 by applying co-integration and the Engle-Granger causality approach. The findings of the co-integration test indicated that there is a long-term relationship between political stability and GDP. As for the Error Correction Model, the existence of a uni-directional causality between political stability and GDP is discovered in the short run.

Furthermore, the effect of the negotiation agreement between Turkey and the European Union to be the full membership of EU members was started in 2005, and this step has improved the political environment in Turkey, and this agreement also give a good impact on FDI inflows. The study by Sánchez-Martínet al. (2015) demonstrated how macroeconomic and political stability such as the regional integration and the choice of foreign policy and geopolitical allies, may influence foreign investor behaviour. Foreign businesses see Turkish action as a promise to improve the political and economic sector that lead to increases in business efficiency and investment opportunities.

Moreover, Omri et al. (2015) studied the effect of oil consumption, tourism, environmental quality, and political stability on economic growth in 18 MENA countries from 1995 to 2011 by using a static and dynamic panel data analysis. Their results indicated that economic development is adversely affected by political turmoil and environmental degradation. Thus, the policymakers needed to take a further approach to foster political stability that will draw more foreign tourists and also speed up the process of economic progress.

### ***2.3 FDI and Macroeconomics Indicators***

Tampakoudis et al. (2017) discovered the factors affecting FDI inflows in fifteen middle-income countries namely trade openness, GDP and population growth. Meanwhile, Bekhet and Al-Smadi (2015) reveled an increase in the inflation rate cause a decline in the inward FDI of the host country. Rahman (2015) discovered a robust positive correlation between FDI and the inflation rate, and FDI was linked with increases in the inflation rate with a negative trade balance. This is due to the impact of high inflation rates cause a reduction in the purchasing power of the people and hence cause economic stagnation.

In terms of financial development, the growth of the financial system also affects the productivity of the financial resources allocated for investment projects. A robust financial sector contributes to strengthening the investments of international investors while supporting productive initiatives that lead to economic growth (Rjoub et al. 2017). This is consistent with the finding from Sapuan et al. (2020) whereas strengthening the domestic financial system was a critical prerequisite for FDI significant impact on economic growth.

Meanwhile, Baek et al. (2016) successfully revealed the effects of FDI inflows, income and energy consumption on CO<sub>2</sub> emissions using the panel data from five (5) ASEAN countries. Doytch and Narayan (2016) discovered FDI as a basis of financing to encourage business development and boost energy efficiency. Meanwhile, Ridzuan et al (2019) discovered that foreign investment inflows have a negative relationship with CO<sub>2</sub> emissions in the short-run and long-run, which refers that whenever the investment level is high led to reducing the level f CO<sub>2</sub> emissions.



### 3 Data and Methodology

#### 3.1 Data Sources and Variables Definitions

The variables of this study are FDI inflows as the dependent variable and macroeconomic variables in Turkey as independent variables, namely Gross Domestic Product (Y), Openness (O), Energy Consumption (E), Population (PO), Domestic Saving (DS), Inflation (P), Gross Fixed Capital Formation (FC) and Political Stability (PS).

The data were collected from the World Bank database, Turkish statistical institute and PRS group from 1974 to 2016. Data for political stability is collected from the International Country Risk Guide (ICRG) where it consists of financial, economic, and political ratings from 1984–2017 and this guide comprise of twelve different political risk indices including Investment Profile, Corruption, Government Stability, External Conflict, Internal Conflict, Socioeconomic Conditions, Religion in Politics, Military in Politics, Ethnic Tensions, Law & Order, Bureaucracy Quality and Democratic Accountability. However, in order to simplify the analysis, we compiled twelve sub-indicators of the ICRG index by employing Principal component analysis (PCA). Therefore, there is one measure in this analysis to demonstrate the fluctuation and importance of Turkey's political stability. The low score (1–4) of this index represents a higher risk, the middle score (5–8) reflects the moderate risk and the high score ( $\geq 9$ ) reflects the low risk (Table 1).

#### 3.2 Unit Root Test, Bound Testing and Model Specification

The stationary test is required to check the unit root of the variable. In order to prevent spurious regression results, this test is important to observe the stationarity of each variable before embarking on OLS analysis. Moreover, the Autoregressive distributed lag (ARDL) technique will be implemented in this study. This technique is used for three main reasons. Firstly, The ARDL method enables the approach to verify the existence of a relationship between variables irrespective of whether the original regressors were  $I(0)$ ,  $I(1)$  or co-integrated. Secondly, this approach is relatively more efficient in small or limited sample data size. Third, it can simultaneously analyses the short-run and long-run relationships (Pesaran et al. 2001).

Additionally, three key steps are included in the ARDL method: First, determine the presence of a long-run relationship using the Bound Test approach. Secondly, the selection of optimal lag. Third, measuring the Error Correction Model (ECM) to reach for short-run equilibrium based on Pesaran et al. (2001). In order to increase model effectiveness, diagnosed tests such as Breusch-Godfrey Serial Correlation LM Test, Conditional Heteroskedasticity Test (ARCH), Ramsey Reset Test, Normality and CUSUM tests were then applied.

ARDL model is used to investigate the short-run and long-run relationship between FDI inflows and its determinants. The proposed unrestricted error correction

model regression used in this study had the following form expressed in the equation below:

$$\begin{aligned} \Delta LFDI_t = & \alpha_1 + \sum_{j=1}^k \beta_1 \Delta LFDI_{t-j} + \sum_{j=0}^k \beta_2 \Delta LY_{t-j} + \sum_{j=0}^k \beta_3 \Delta LO_{t-j} + \sum_{j=0}^k \beta_4 \Delta LE_{t-j} \\ & + \sum_{j=0}^k \beta_5 \Delta LDS_{t-j} + \sum_{j=0}^k \beta_6 \Delta LFC_{t-j} + \sum_{j=0}^k \beta_7 \Delta LP_{t-j} + \sum_{j=0}^k \beta_8 \Delta LPO_{t-j} + \sum_{j=0}^k \beta_9 \Delta PS_{t-j} \\ & + Y_1 LFDI_{t-1} + Y_2 LY_{t-1} + Y_3 LO_{t-1} + Y_4 LE_{t-1} + Y_5 LDS_{t-1} + Y_6 LFC_{t-1} \\ & + Y_7 LP_{t-1} + Y_8 LPO_{t-1} + Y_9 PS_{t-1} + \varepsilon_{1t} \end{aligned} \quad (1)$$

Where,  $\alpha_1$  represent intercepts;  $\beta_1, \dots, \beta_9$  are the short-run coefficients;  $\varepsilon_1$  denote the error terms;  $Y_1, \dots, Y_9$  is the long-run coefficient.

The hypothesis for co-integration is as follows:

$Y_1 = Y_2 = Y_3 = Y_4 = Y_5 = Y_6 = Y_7 = Y_8 = Y_9 = 0$ , which indicates no co-integration between FDI and its determinants.

$Y_1 \neq Y_2 \neq Y_3 \neq Y_4 \neq Y_5 \neq Y_6 \neq Y_7 \neq Y_8 \neq Y_9 \neq 0$ , which indicates a existence of co-integration between FDI and its determinants.

## 4 Results and Discussion

The base point of analysis is starting with correlation analysis. This research applies the pairwise method to get the correlation matrix. The correlation coefficient among variables is presented in Table 2. It can assist the study to illustrate the existence of relationship and collinearity between variables, particularly among independent variables. It reveals that the correlation of FDI and most of its determinants excluding political stability is moderate at 1%, 5% and 10% significant levels. Even though, the results showed the presence of high correlations (more than 0.80) between the variables, indicated the existence of multicollinearity problems. Yet, this problem can be overcome with the use of ARDL whereby ARDL analysis allows the use of different lags in its operations and it can change the sign of the coefficients for the independent variables (Kumar et al. 2013).

The results of unit root tests are shown in Table 3. A unit root test is used to identify whether the unit root is existed or not basically, to examine whether the variables are stationary or non-stationary. In this research two unit root tests were applied (Augmented Dickey-Fuller and Phillips-Perron unit root test), to test the null hypothesis which indicates that the variables have a unit root against the alternative hypothesis states that the variables are stationary, namely "t-statistics" of Im et al. (2003) and "z-statistic" of Harris and Tzavalis (1999). Since the hypothesis of stationary of level zero is accepted only for LPO and for the rest of the variables they show the stationary situation for first difference, it refers that LPO is stationary at the first difference I(0) and I(1) and the rest of variables are stationary at the level I(1).

**Table 1** Variables details

| Variables                     | Item | Units                            | Sources                       |
|-------------------------------|------|----------------------------------|-------------------------------|
| GDP                           | LY   | US dollars (constant 2000 = 100) | World bank database           |
| FDI                           | LFDI | US dollars (constant 2000 = 100) | World bank database           |
| Openness                      | LO   | US dollars (constant 2000 = 100) | World bank database           |
| Energy consumption            | LE   | kg of oil equivalent per capita  | Turkish statistical institute |
| Population                    | LPO  | No of people (millions)          | Turkish statistical institute |
| Inflation                     | LP   | Annual %                         | World bank database           |
| Gross fixed capital formation | LFC  | US dollars (constant 2000 = 100) | Turkish statistical institute |
| Domestic saving               | LDS  | US dollars (constant 2000 = 100) | World bank database           |
| Political stability           | LPS  | Based on 12 indexes              | PRS group, Inc source         |

**Table 2** Correlation coefficients between all included variables

|      | LFDI    | LY       | LDS     | LE       | LFC      | LP       | LO     | LPO   | LPS  |
|------|---------|----------|---------|----------|----------|----------|--------|-------|------|
| LFDI | 1.00    |          |         |          |          |          |        |       |      |
| LY   | 0.96*** | 1.00     |         |          |          |          |        |       |      |
| LDS  | 0.66*** | 0.64***  | 1.00    |          |          |          |        |       |      |
| LE   | 0.93*** | 0.98***  | 0.66*** | 1.00     |          |          |        |       |      |
| LFC  | 0.93*** | 0.98***  | 0.70*** | 0.98***  | 1.00     |          |        |       |      |
| LP   | -0.8*** | -0.83*** | -0.38*  | -0.78*** | -0.77*** | 1.00     |        |       |      |
| LO   | 0.76*** | 0.77***  | 0.45**  | 0.82***  | 0.73***  | -0.58*** | 1.00   |       |      |
| LPO  | -0.43** | -0.51*** | -0.30*  | -0.55*** | -0.59*** | 0.46***  | -0.30* | 1.00  |      |
| LPS  | -0.28   | -0.23    | -0.04   | -0.14    | -0.17    | 0.29     | -0.26  | -0.21 | 1.00 |

Since there is a combination of I(1) and I(0), this study applied the ARDL method to analyze the relationship between variables.

The next step is to find the optimal lag. Several studies state that the optimal lag length detected rely on the lowest values of AIC test since this test performing relatively well in small sample size and minimizing the loss of a degree of freedom as well. Remarkably, in ARDL, each variable can have a distinctive lag as an optimal lag. The optimal order of lag for this model is (2, 2, 2, 2, 1, 2, 2, 2, 2).

The next step is to estimate the cointegration between the variables. This is done by performing the F-test or the Wald test (Sapuan and Roly 2020). The F-statistics for the cointegration test is displayed in Table 4 based on the critical value suggested by Narayan (2004) using a small sample size. In this study, the Findings show that the calculated F-statistic (F-statistic = 17.707) is higher than the upper bound critical

**Table 3** Unit root test

| Variables | Augmented Dickey-Fuller Test |           | Phillips-Perron Test |           |
|-----------|------------------------------|-----------|----------------------|-----------|
|           | I(0)                         | I (1)     | I (0)                | I (1)     |
| LY        | -0.847                       | -6.980*** | -0.840               | -6.980*** |
| LFDI      | -0.999                       | -9.245*** | -0.651               | -9.758*** |
| LO        | -1.517                       | -4.648*** | -1.531               | -5.502*** |
| LE        | -0.321                       | -6.338*** | -0.167               | -6.777*** |
| LDS       | -1.934                       | -5.911*** | -1.345               | -6.343*** |
| LFC       | -0.780                       | -6.315*** | -0.784               | -6.320*** |
| LP        | -0.902                       | -6.401*** | -0.914               | -6.401*** |
| LPO       | -2.679**                     | -3.667*** | -0.820               | -3.710*** |
| LPS       | -2.079                       | -3.873**  | -2.348               | -4.740*** |

Note: \*\*\*, \*\*, and \* show the significance level at 1%. 5% and 10% respectively

**Table 4** F-Statistic of cointegration relationship

| Test Statistic          | Value  | Significance level | Bound critical values |      |
|-------------------------|--------|--------------------|-----------------------|------|
|                         |        |                    | I(0)                  | I(1) |
| F-Statistics<br>(k = 8) | 17.707 | 1%                 | 2.62                  | 3.77 |
|                         |        | 5%                 | 2.11                  | 3.15 |
|                         |        | 10%                | 1.85                  | 2.85 |

**Table 5** Diagnostics tests

| Breusch-Godfrey serial correlation LM test |       |                      |       |
|--|-------|----------------------|-------|
| F-statistic                                | 1.852 | Prob. F (2,2)        | 0.351 |
| Heteroskedasticity Test: ARCH              |       |                      |       |
| R-squared                                  | 0.126 | Prob. Chi-Square (1) | 0.723 |
| Ramsey reset                               |       |                      |       |
|  | Value | df                   | Prob  |
| F-statistic                                | 5.894 | (1, 3)               | 0.094 |
| Normality of residuals                     |       |                      |       |
| Jarque-Bera                                | 0.392 | Prob                 | 0.822 |

value at a 1% level of significance which indicates the existence of the long-run relationship.

The diagnostic test consists of serial correlation, conditional heteroscedasticity (ARCH), RAMSEY RESET and normality of residual is provided in Table 5. The Lagrange-multiplier (LM test) approach used to check for autocorrelation based on the result of LM test, the p-value of LM test is not significant and hence the null

**Table 6** Error correction model outcomes

| Variable    | Coefficient | Std. Error | t-Statistic |
|-------------|-------------|------------|-------------|
| D(LFDI(-1)) | 0.461       | 0.042      | 10.854***   |
| D(LY)       | 5.477       | 0.342      | 16.002***   |
| D(LY(-1))   | -3.473      | 0.259      | -13.399***  |
| D(LE)       | -8.127      | 0.737      | -11.023***  |
| D(LE(-1))   | 18.517      | 0.973      | 19.042***   |
| D(LDS)      | 0.554       | 0.225      | 2.461*      |
| D(LDS(-1))  | -0.946      | 0.194      | -4.869***   |
| D(LFC)      | -2.453      | 0.255      | -9.620***   |
| D(LP)       | 0.419       | 0.068      | 6.209***    |
| D(LP(-1))   | 0.439       | 0.084      | 5.246**     |
| D(LO)       | 3.518       | 0.277      | 12.698***   |
| D(LO(-1))   | -1.910      | 0.259      | -7.369***   |
| D(LPO)      | -0.091      | 0.016      | -5.599***   |
| D(LPO(-1))  | 0.070       | 0.012      | 5.659**     |
| D(LPS)      | 0.348       | 0.195      | 1.786       |
| D(LPS(-1))  | -1.693      | 0.163      | -10.367***  |
| Ect(-1)*    | -1.131      | 0.047      | -23.989***  |

Dependent variable: LFDI

Note: \*\*\*, \*\*, and \* show the significance level at 1, 5 and 10% respectively

hypothesis of no serial correlation cannot be rejected. Thus, there is no issue of autocorrelation in the model.

The Ramsey Regression Equation Specification Error Test (RESET) test is also applied to identify function misspecification because of variable omission bias or incorrect functional form. Table 5 shows the outcomes of RAMSEY RESET test. As the probability of F-statistic is not significant at 5% level of confidence, so there is no issue of misspecification, and the model is accurately specified. Finally, the model is tested for the normality of residuals. This study used the Jarque-Bera test to assess the normal distribution of residuals. If the P-value of Jarque-Bera test is significant, the distribution of residuals is not normal and otherwise, it is normally distributed (Gujarati 2003). Table 5 demonstrates the result of normality testing. The insignificant P-value leads to accepting the null hypothesis of the normal distribution of residuals. Therefore, there is no issue of non-normality of residual.

Eventually, Tables 6 and 7 show the result of the Error Correction Model (ECM) and ARDL analysis in the long-run. The coefficient of ECM is negative and significant at 1% confidence level. This means that the  $\Delta$ LFDI model is corrected from the short-run equilibrium to the long-run equilibrium at a fast speed of adjustment by 113%. The results also showed the all variables are significant in the short-run at 1, 5 and 10% significant level at the various lag level.

**Table 7** The Long-run equilibrium

| Variable | Coefficient | Std. Error | t-Statistic |
|----------|-------------|------------|-------------|
| LY       | 6.486       | 1.240      | 5.230***    |
| LDS      | 1.878       | 0.721      | 2.604**     |
| LE       | -25.478     | 6.696      | -3.805**    |
| LCF      | 0.0195      | 0.566      | 0.034       |
| LP       | -0.202      | 0.141      | -1.433      |
| LO       | 5.639       | 1.573      | 3.585**     |
| LPO      | -0.065      | 0.023      | -2.821**    |
| LPS      | 2.782       | 1.286      | 2.163*      |
| C        | -5.888      | 5.665      | -1.039      |

Dependent variable: LFDI

Note: \*\*\*, \*\*, and \* show the significance level at 1, 5 and 10% respectively

The results of the long-run are provided in Table 7. The results show the gross domestic product (LY), Domestic saving (LDS), Openness (LO), political stability (LPS) have a significant and positive impact on FDI. This outcome confirms the findings related to the impacts of national income, domestic saving, openness and political stability on FDI from previous studies. Decision-makers in Turkey should deliver some precise policies to inspire investing in Turkey economy especially through economic openness policies since the inflow of FDI lead to the improvement in economic growth. This means more FDI inflows can attract more innovative technology, upsurges profitability from investment and ultimately leads to enhanced economic growth.

Besides that, they could encourage more FDI in Turkey. This can be clarified that when better investment situation and advance technology lead to minimize the cost of production, contemporaneously this will lead to a higher quality of export goods and then increases the total export from Turkey. Also, the outcome displays there is a significant relationship between FDI inflows and economic growth. This infers that an increase in the economic growth will lead to an increase in the FDI inwards, which in turn will increase the economic performance.

Moreover, this result also implies that higher political stability leads to higher FDI. On the other hand, population (LPO) and energy consumption (LE) have a negative impact on FDI. Therefore, it can be concluded that higher energy consumption and population growth lead to lower FDI. These results are in line with Aziz and Makkawi (2012) where other countries that have a high rate of population may face obstacles in inwards FDI if they have destitution of sufficient technical and higher institutions to develop a highly-skilled workforce. There is evidence that FDI inflows may be related to the existence of skilled workforces (Zhang and Markusen 1999).

It is recommended for Turkey to maintain political stability as it can attract more FDI inflows in the long-run for this country. This study is consistent with the finding from Bilgin, et al. (2017) and Bitar et al. (2019) where political instability gives a

negative impact on FDI. On the other hand, the FDI of developing economies depends not only on national income (Y) but also on domestic saving (DS), energy consumption (E), openness (O) and population (PO) with positive and negative effects. The relationship of most economic determinants of FDI has been emphasized in various studies (Ali and Xialing 2017; Cheng Lin et al. 2017; Gunby Jin et al. 2017), but this present study confirms that FDI particularly is impacted by political stability.

## 5 Conclusion

The findings of this study provide empirical evidence on how political stability and macroeconomic variables affect FDI in the context of developing economies. As the coefficient of political stability has a positive relationship with FDI, the rise in political stability contributes to an improvement of FDI. In addition, the findings of this study provide reasons for further understanding of the relationship between macroeconomic variables and FDI inflows. These findings showed the impact of each macroeconomic variable on FDI. The results confirm the positive relationship of GDP, Openness, and domestic savings on FDI inflows, as well as the negative impact of energy consumption, population and inflation on FDI inflows in Turkey.

As a policy recommendation, it indicates that Turkey's decision-makers should follow specific policies that promote foreign investment, as it contributes to sustainable economic growth. In addition, economic openness policies in Turkey can attract more FDI. The stable economic environment and better technologies will contribute to a decrease in the cost of production, and at the same time, a higher quality of export goods can be produced and overall exports from Turkey will then can be increased. Moreover, the outcome also revealed that inflation has a negative relationship with FDI inflows. Thus, Turkey's policymakers have to pay more attention to the current inflation rate and handle it well through better monetary policy from Turkey's central bank.

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# Housewives Thrive in Informal Economy: Opportunities, Challenges, and Prospects



Siti Nahdia Mohd Hamidi, Dzulkifli Mukhtar , Yasmin Adjril, and Elok Damayanti

**Abstract** The informal economic sector in the country is moving towards a more dynamic and competitive economy. This sector is significant because it can help generate economic growth and provide housewives with employment opportunities. The informal economic sector includes unregistered and unregulated, but not illegal, business activity. The informal economic sector's concept and characteristics, such as accessibility, low capital utilization, and small operating levels, have made it thrive among Malaysia's housewives. The increase in the number of housewives in entrepreneurship shows that they are mature in running a business. Thus, it can be seen from the perception of housewives the factors of the challenges faced by housewives in running their business, the opportunities in their business operations, and the prospects for such success, focusing on four aspects: human capital, social capital, financial capital, and psychological capital.

**Keywords** Informal economy · Micro-entrepreneur · Women-entrepreneur

## 1 Introduction

Nowadays, women have become an essential element in the country's evolution by reaching 2020 (Haynes and Ebony 2017). Women are not just reproductive agents for the family but a part of the nation that brings the country to a different level (Zainol et al. 2017). Generally, women make up a large part of the population. The generous contribution of women to the development of the country has long been acknowledged. As wives and mothers, they are the main pillars of the future

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S. N. M. Hamidi · D. Mukhtar (✉)

Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, 16100 Kota Bharu, Malaysia

e-mail: [dzulkifli@umk.edu.my](mailto:dzulkifli@umk.edu.my)

Y. Adjril

MKR Hartamas Sdn Bhd, 50088 Kuala Lumpur, Malaysia

E. Damayanti

Narotama University, Surabaya 60177, Indonesia

formation of Malaysians' loving and progressive generation. About 49% of total population consists of women and approximately 48% of women's total labor force population. The increase in women's participation as a workforce indicates that women's participation in national development activities is becoming more positive. This is supported by the development of a country that opens up many opportunities and spaces for women to enhance their achievements in different fields and activities, as well as to open up and meet more significant challenges in order to continue to play a role and to succeed in line with the country's industrial and modernization process of the twenty-first century.

Housewives' involvement is very encouraging in the conduct of business activities, and they are indirectly involved in the informal economic sector. Most housewives are now own businesses and typically do home-based business, such as being agents, stockists, and drop-shippers (Husin et al. 2020). Although home-based business is one of the micro-enterprises that operates as an informal business sector that is easy to get in and easy to get out of, some housewives are successful and earn a very lucrative income. Involvement in the informal economy sector has become the latest trend for housewives.

Doing business from home is also a current trend, and it is this housewife who has created this trend. Current living conditions are demanding and moving in that direction. Besides, the cost of running a business from home is lower than setting up a shop or renting premises. While the use of computers today and internet access speed has led to a new form of online sales and purchases. For example, Malaysia currently has 25 million internet subscribers with more than 42 million mobile phone users. With such rapid growth, online business has become a fast-growing phenomenon, and this online business is no stranger to today's housewives who want to take the opportunity to venture into business. Many housewives are now doing business from home because of life stress requiring expenses and incurring high costs to survive. Eating and drinking all day with rising prices for goods, housing, vehicles, utility bills, and treatment costs are also high and expensive. Consequently, due to the stress of life and the urge of women who become housewives to find additional income to cover expenses that cannot be borne by the husband alone. Besides, women quit their jobs and choose to become housewives due to work stress and several factors that led to the decision to resign. Nevertheless, because they are used to working and having an income, doing business can help prevent them from working for a living and, at the same time, from having their income. They also feel unable to sit still and work to their satisfaction.

The informal economy offers many opportunities for housewives out there to tame themselves into a business. The high demand for online business and the variety of products nowadays tends to help housewives increase their family income by running a business. At the same time, women monopolize the acquisition of necessities or goodwill. So, of course, housewives can identify which items they can advertise in order to get customers. Instead, they can take advantage of the opportunities provided by social capital, which is that they can learn new business skills, learn how to communicate with society, learn how to convince or negotiate with the customer, and learn how to deal with the family. At the same time, financial support is a critical

factor in ensuring that the business operates smoothly. Women entrepreneurs have a hard time maintaining finances because they need to control their family needs, social recognition, financial freedom, and business success. Note that housewives who do business have trouble getting financial support, such as loans from banks and government agencies. Housewives who do business from home will save costs such as transportation to work, childcare while going to work, and so on, compared to formal work. Business income also contributes to the family economy while at the same time improving the national economy. Home-based businesses also affected the lifestyle of housewives and simultaneously maintained a work-life balance.

## 2 A Literature: Informal Economy and Micro-businesses

The informal economy is a diversified set of non-state-regulated or covered economic operations, enterprises, employment, and employees. Initially, the term applied to self-employed persons in small, unregistered companies. The origin of the term informal economy refers to the irregular income opportunities of urban poor people. Typologically, someone worked at the time, and formal income opportunities were made up of public and private sector wages and transfer payments. In contrast, informal opportunities included a wide range of activities outside the organized workforce. These included agriculture and market gardening, self-employed commodity production and home-based businesses (Haynes and Ebony 2017). A taxonomy to describe unobserved economies, including the informal economy, is characterized by an institutional collection of rules in some form of non-compliant activity. The circumvention of labor market laws specifying minimum wages, working conditions, social security, unemployment, and disability insurance gives rise to an informal economy that deprives some workers of the benefits they deserve while providing others with undeserved benefits (Zainol et al. 2017).

In most countries, there is no official definition of the informal sector. Nevertheless, the International Research and Training Institute for the Advancement of Women (INSTRAW) has drawn up a list of the characteristics to be identified:

- simple technology
- minimal capital
- no fixed place of business
- quasi-legality or lack of registration
- keeping a little record.

Development experts have noted that in developing countries, where jobs in officially licensed enterprises are scarce, many of the population lives by working outside the official tax and regulatory systems. These people who make up the informal economy are innovators, capable of surviving and sometimes thriving in a highly regulated environment. Typical urban or rural housewives in Malaysia's informal economy have primary education and average household size of five. After marriage, she entered the sector and began to bear children; now, she contributes substantially to

the total income. Approximately one-third of the debts incurred to provide capital to their businesses have been incurred. Most urban housewives have previously worked in the formal economy sector. Despite their contributions to the country's overall economy, housewives in the informal economy are faced with significant barriers: low pay, lack of access to resources such as capital, education, and training, and exclusion from the policy-making process. Women and others often view women's work in the informal economy sector as an extension of their domestic work. As a result, their compensation is based not on labor market rates but on domestic labor rates, which is little or nothing. Even informal economy professionals charge lower rates than their counterparts in the formal economy sector. Housewives in the informal economy sector have little or no access to loan capital from banks and other financial institutions, as requirements and procedures tend towards the formal economy sector and against women.

## **2.1 *Micro-business***

Micro-business is a small business segment that operates on a smaller scale and has fewer than five employees (Haynes and Ebony 2017). Micro-business is essential for local communities and plays a crucial role in stabilizing the county economy. Nevertheless, micro-business can be considered as one of the informal business sectors. The informal sector is considered a significant part of the economy, particularly in developing parts of the world. It is also known by law as non-officially registered and non-registered activities. Action by individuals engaged in the informal sector should not always be classified as illegal (Zainol et al. 2017). This is because they have the choice not to formalize their business. Since they are neither registered nor standardized, it is almost impossible to record the informal sector's data and information. However, it is still crucial to analyze and consider the informal economy and its activities as it creates jobs and contributes to the economy, particularly in developing countries.

As micro-enterprises are not formally registered, they do not have access to legal services. In general, the definition of micro-business can be expressed by the number of employees, total assets, annual sales, and capital size. Multiple types of market structure, production structure, market power, policy, and legal systems in each country could be used for the different classifications of micro-businesses. Informal micro-business is a vital source of employment and income for women and a means of achieving sustainable livelihoods (Zainol et al. 2017). However, women involved in micro-business are faced with several challenges. In the case of micro-business, finance, or micro-credit, it cannot be the sole ingredient of success like any other business venture. Other factors, such as human and social capital, are equally important. A combination of these different forms of money is essential for improving the performance of micro-enterprises. Without an appropriate mix, business success will be a real challenge. On the other hand, unsuccessful micro-businesses could have

little, if any, favorable effect on poverty alleviation or welfare improvement (Atmadja et al. 2016).

Micro-business generally lacks information advantages than large and medium-sized enterprises and faces constraint in business financing (Wen et al. 2020). The presence of gender bias in the financial sector causes unequal treatment for women when dealing with banks and other mainstream credit institutions that favor men (Atmadja et al. 2016). Women are also less likely to have relevant industry-specific experience. As a result, women-owned firms are less likely to be successful based on business success economic measures. Another explanation is that, given that women consider risks more, they tend to demand relatively small but more frequent loans; this increases the cost of lending. Human capital is the next factor in the performance of micro-enterprises. Human capital refers to formal education, attitudes, and other human skills and abilities acquired through business experience. Education, a fundamental human capital source, provides general human capital, such as the skills available for research, foresight, imagination, computational and communication skills, and the specific skills and knowledge that are pre-requisites of particular human capital associated with on-the-job training (Atmadja et al. 2016).

In entrepreneurship literature, the existence or growth of microenterprises in a region reflects the development of an entrepreneurial spirit (Zainuddin et al. 2019). Many people choose to run their businesses for various reasons, such as flexibility, freedom, independence, dreaming, or earning more money. Of all micro-businesses, 27.6% are in the housing sector, and food services account for about 27.6%; about 46% are in the wholesale, retail, and repair business; 13.5% are in the manufacturing sector, while the remaining 12.5% are in other service categories. Some micro-businesses are home-based, and some are only part-time. Here is a list of ideas for micro-business in Malaysia:

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Trade, merchandising, and retail</li> <li>• The food business</li> <li>• Agriculture and the aquatic environment</li> <li>• Online or home-based companies</li> </ul> | <ul style="list-style-type: none"> <li>• Graphics and design</li> <li>• The arts and craft</li> <li>• Professional services licensed</li> <li>• Money and finance</li> </ul> |
|--|--|

## 2.2 *Human Capital*

Human capital has a significant positive effect on the growth of women's micro-enterprises. If entrepreneurs have human capital skills in all respects, this will be more significant (Musa et al. 2016). Formal education is one part of human capital that can help acquire explicit information that can provide useful skills to entrepreneurs. In addition to formal education, expertise is another critical aspect of human capital. It is shaped by the formal and informal training of the skills needed to make the most of the opportunity (Atmadja et al. 2016). About internal sources, the family is an important training ground for entrepreneurs. Exposure to family business allows

individuals to learn how to start and develop a business through apprenticeship. Many of the skills needed for decision-making are tactfully understood and not codified (Atmadja et al. 2016). In this way, if individuals had the opportunity to gain some business experience through family or close friends, their expertise in evaluating a business opportunity could be more significant. According to Atmadja et al. (2016) external sources, prior training knowledge, and work experience enable entrepreneurs to improve their efficiency in collecting information and provide valuable knowledge on the financing and development of their businesses. It also increases confidence in the exploration of opportunities.

Expertise comes from two primary sources, internal and external (Mukhtar et al. 2021). Similarly, in this study, women entrepreneurs sold various products but were also confronted with limited marketing opportunities. Human capital is typically measured by examining individual experience (professional and personal), training, educational level, skills, knowledge, and capabilities. This resource was linked to its size, business growth, profitability, and overall entrepreneurial performance. Exploring the motivation factors for housewives to run a business is by drawing on human capital. Human capital has a significant positive effect on the growth of women's micro-enterprises. McPherson (1996) revealed that the business would be more critical if entrepreneurs had human capital skills in all respects. As Semrau and Hopp (2016), cited "Formal education is a component of human capital that can contribute to the accumulation of explicit knowledge that can provide skills that are useful to entrepreneurs". Thus, according to the demographics of all housewives, they all have a high level of education.

Besides, research by Pingle (2005) found that single women's single Entrepreneurs (widows, divorcees, or abandoned) have more flexibility to focus on their micro-business because they do not have to pay attention to their homes. However, due to minimal restrictions on economic opportunities, they still do not succeed. However, the findings do not raise a question of freedom for housewives who have husbands. Their husband is tremendously encouraging them to join a business.

### ***2.3 Social Capital***

Social capital exists in the relationships between individuals and makes it possible to achieve specific objectives that would not be possible without its presence. Social capital also plays a role in the performance of a business. Musa (2016) states that social capital refers to the social relations that people use to help them gain networking growth tools, building social link skills, opportunities, and business success opportunities essential to business success. However, women are often excluded from social and business networks due to lack of time, culture, gender bias, and marital status, even though they need to broaden their business growth sources (Ming-Yen et al. 2007). The lack of time is often linked to the multiple roles that they have to play. According to Musa et al. (2016) doing home-based businesses provided flexibility for these women entrepreneurs to manage their roles as housewives, but this also entailed

business expansion and operations limitations. It shows that housewives in businesses have not imposed limitations on business operations because they can use the social capital that is the online platform, such as Facebook, Instagram, and WhatsApp (Nawi et al. 2019). Social capital also offers a lot of opportunities for housewives to thrive in the informal economy. For example, they can gain new business knowledge, learn how to communicate with society, learn how to convince customers, and automatically build trust between their customers through free coaching or the supplier of the product they would sell (Husin et al. 2020).

Besides, there are five social capital challenges: high competition, less networking, less trust, consumer behavior, and social constraint. Support for previous research, Patel and Wincent (2017) argues that social capital places high restrictions on women micro-entrepreneurs in Pakistan's traditionally patriarchal society. Social capital is preventing or slowing down efforts.

## 2.4 *Financial Capital*

Financial capital that can be financed from informal sources, such as the entrepreneur's personal and family assets, and traditional sources, such as financial institutions or external investors. In general, informal sources tend to be the most critical source of funding for minority entrepreneurs. The lack of financial capital is a significant deterrent to the performance of ventures, as it may result in unprofitable enterprises that are likely to impact the future growth of these enterprises (Juma and Sequeira 2017). Musa et al. (2016) state that women micro-enterprises have always had problems starting up and maintaining their businesses due to lack of financial capital. Financial issues are the reason why women's business outcomes are generally lower than men's business. Furthermore, without overlooking the vital role of financial capital in business development, micro-credit does not always directly affect micro-enterprises performance (Atmadja et al. 2016). However, this relationship is significant when it comes to the ability of entrepreneurs to innovate. As far as financial capital is concerned, it was based on the fact that informal business opportunities are high-profit margins. It means that they have a high profit from their sales. The findings also found that there is no need for high capital to join the informal business. To set up an online business, a good part of the capital is usually required to purchase an inventory of products. Still, home-based start-up costs are lower (Plus 2020). Besides, the finding shows that they can improve their family economy by engaging in a home-based business.

Due to the scarcity of financial resources, women in micro-enterprises have always had problems starting up and sustaining their businesses. Financial issues are why women's business outcomes are generally lower than men's business (Pingle 2005). Although Malaysia's government agencies have provided capital, they are small and could be seen as unfavorable by borrowers, as in Amanah Ikhtiar Malaysia. Capital is not sufficient to roll, especially if payments are too late. It is time to analyze and evaluate the effects of microfinance in Malaysia. However, they only posed a

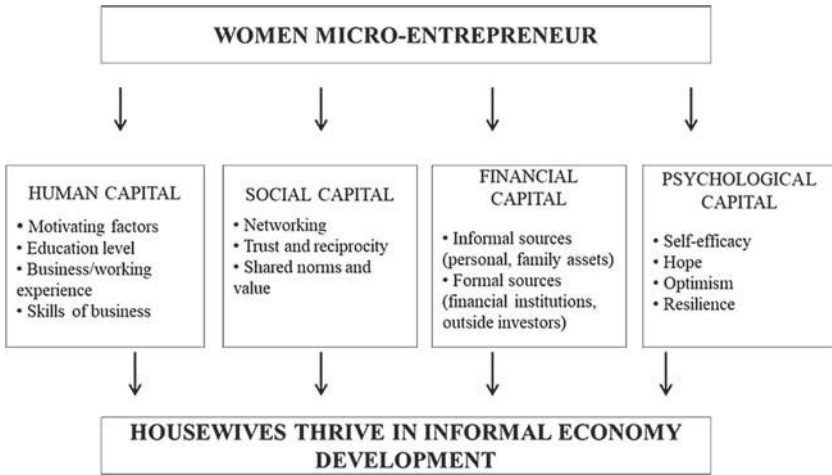


financial source problem when they wanted to expand their business, like opening a shop.

## ***2.5 Psychology Capital***

Psychological capital is built primarily based on positive psychology theory and research. Psychological capital focuses on the individual's psychological capacity that can be measured, developed, and used to improve performance (Juma and Sequeira 2017). As a result, the impact of individual factors on the undertaking's performance depends on its environmental context, both economic and entrepreneurial. Moreover, when women engage in business activities, they are automatically engaged in dual careers as housewives and, simultaneously, as businesswomen, which will lead to new challenges in balancing work and family life (Alsos et al. 2016). In this case, there could be two sides to the challenge: the positive impact of businesswomen's lifestyle and the negative impact of businesswomen's lifestyle. For example, businesswomen gain much positive experience even if they are housewives. In comparison, it could be a scheduling problem for the negative side, either with their business or their families.

Agarwal (2015) argues on the other hand, to meet their higher-order needs for achievement, self-esteem, flexibility in life, and economic independence, women have entered into entrepreneurship, which has traditionally been seen as a men's stronghold. Thus, the findings show that running a business affects the lifestyle of housewives and, at the same time, maintains a work-life balance. Housewives pointed out that they could use their profits to their satisfaction and, at the same time, overcome the economic crisis of the family and provide their children with a better life through their entrepreneurial skills. Furthermore, housewives' difficulties in managing the family and driving business at the same time are only a minor concern. They can run their business at any time and have no family restrictions, which business activities do not affect a change of role as a housewife.



The above figure shows six constructs: micro-entrepreneur women, human capital, social capital, financial capital, psychological capital, and housewives thrive in developing the informal economy. The framework is divided into three categories, starting with the input that includes motivation for women to engage in entrepreneurial activities; then the barriers that affect the developed women’s entrepreneurship process model, and, finally, their decision whether or not to engage in entrepreneurial activities. There is, in fact, a strong relationship between the motives of women to start a business and the barriers they may face in order to do so; they thus find themselves torn between four key factors capable of affecting each other: individual factors, social factors, financial factors, and psychological factors. Moreover, addressing employment issues and economic development and support and education and training remain crucial elements in drawing women’s attention. On the other hand, lack of funding, business and government support, and entrepreneurship education has hindered women from starting a business. This was complemented by the strong impact of culture and tradition on women’s entrepreneurial decision-making and processes. Significantly, both motives and barriers can positively or negatively impact the model developed by the female entrepreneurial process. Women can evaluate the impact of each other to decide whether or not to engage in entrepreneurship.

### 3 Conclusion

This paper shows that housewives in the informal economy are mainly motivated by economic factors. They believe that being in business gives them a chance to earn the right income relative to their efforts. Deep interest, experience, and self-motivation in improving the family economy are among the top five motivations for housewives to thrive in the informal economy. The lack of access to financial capital, lack of business knowledge, and a small social circle is perceived as the most

severe problems. It shows that housewives' involvement in business activities does not affect the change of role of housewife. This is because they still carry out their role as housewives responsible for managing housework, managing family wear, educating children, and keeping the house comfortable and tidy. Although they are busy running a business to earn income, they still do not neglect and carry out their role as housewives for the family's well-being. While several factors change their role as full-time housewives who manage household affairs to a micro-entrepreneur, they can be independent without depending on the partner and act as a couple's assistant to earn additional income to reduce the burden family expenses. If taken seriously and do not consider it to be a side income, doing this business is more than a career.

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# Study on the Dilemma and Countermeasures of Rural Revitalization in Deeply Poor Mountainous Areas of China



Li Bin , Nooraziah Ahmad , and M. Darliana

**Abstract** Under the guidance of the rural revitalization strategy of China's government, the battle against poverty paid off to some extent, promoting the comprehensive development of the deeply poverty areas effectively. Nowadays, the local rural revitalization has reached a critical point since the coming "Post 2020" era. Having analyzed the current situation of rural poverty revitalization in Shangzhou District of Shangluo City, Through a large number of investigations, literature research, quantitative and qualitative analysis and other research methods, I found that there are still problems on weak foundation for poverty alleviation, difficulty in poverty alleviation, low population quality, backward perspectives, imbalance in industrial investments. Besides, there are many causes of poverty, and the task of returning back to poverty is arduous. In addition, the local income is limited and there is a large capital gap. From this perspective, it is proposed to increase government policy guidance, actively promote large-scale industrial development, promoting the diversified and integrated development of poverty alleviation industries, strengthening vocational training and education for poor households, doing a good job in poverty dynamic management, eliminating multi-directional financing from the source, strengthening project management. These would aid it in attaining a complete victory in rural revitalization.

**Keywords** Deeply poor mountainous areas · Rural revitalization · Poor villages

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L. Bin (✉) · N. Ahmad · M. Darliana

Faculty of Creative Technology and Heritage, University Malaysia Kelantan, Pengkalan Chepa, Kota Bharu, Kelantan, Malaysia

N. Ahmad

e-mail: [nooraziah@umk.edu.my](mailto:nooraziah@umk.edu.my)

M. Darliana

e-mail: [Darlianam@umk.edu.my](mailto:Darlianam@umk.edu.my)

## 1 Introduction

Since the thought of “Rural Revitalization” was put forward by General Secretary Xi Jinping when he visited Xiangxi in Hunan Province in 2013, the Communist Party of China and the government have raised the work of poverty alleviation to the height of national development strategy. It is necessary to ensure that by 2020, the rural poor under the current standard of our country will achieve poverty alleviation, solve region-wide poverty, and achieve real poverty alleviation. How to effectively complete this important task and build a long-term poverty reduction and poverty prevention strategy in line with the actual situation in the “post-2020” period is a hot research issue in the academic circle when the poverty alleviation battle will be completed in 2020. The fight against poverty is a political issue. Due to the imbalance of regional development in China, it also leads to the uneven progress of regional poverty alleviation space. Coupled with different governance models, there are still some deviations in the final realization of poverty alleviation, which is difficult to achieve the original intention of politics. At present, the poverty alleviation in deep poverty-stricken mountainous areas has entered a tense final stage. In this case, the completion of poverty alleviation does not mean the end of poverty. It is also necessary to ‘fill gaps’ timely to make up for deficiencies in the work, promote poor households to continue to get rid of poverty and truly move towards a well-off society.

At present, rural revitalization has also become one of the hot topics in academic research. Relevant academic research is mainly divided into the following aspects: from the problems and strategies of poverty alleviation, Zhang Long et al. proposed to give full play to the advantages of resources and policies, innovate poverty alleviation measures, and improve the endogenous motivation of poverty alleviation, so as to ultimately achieve the goal of building a moderately prosperous society in all respects (Zhang and Yin 2020). From the perspective of poverty reduction strategy, Ye Xingqing et al. proposed to deal with the relationship between policy targeting and administrative costs, with lower administrative costs to make target groups become the main audience of policy (Ye and Yin 2020). From the perspective of ecological protection, Wang Heng et al. proposed to increase the stock of human capital and social capital of farmers, improve infrastructure construction, and improve the treatment and welfare of village cadres (Wang and Wang 2020). From the perspective of poverty governance, Su Hai et al. proposed to optimize the structure and order of poverty governance and deduce a more diversified and local governance model (Su and Xiang 2020). From the perspective of the new poverty alleviation mechanism, Song Min et al. proposed to build a new pattern of “two screens and two belts” of Qinba green ecology (Song and Yao 2019). From the perspective of the connotation of rural revitalization, Guo Rupeng et al. proposed to carry out rural revitalization from the three dimensions of premise, path and core (Guo et al. 2020). These scholars use macro or micro theories to analyze rural revitalization from different perspectives comprehensively, but there are not many theories related to the study of deep poverty mountainous areas. Therefore, combined with the current critical stage of poverty

alleviation, it is necessary to analyze the representative deep poverty mountainous areas in Shangzhou District of Shangluo City.

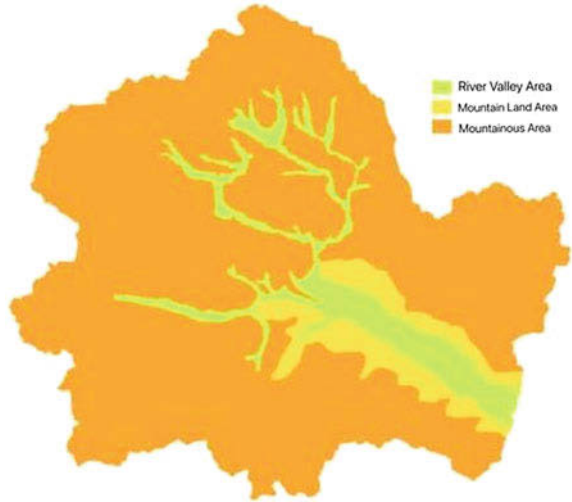
From the purpose of the survey, Shangzhou District of Shangluo City is located at the southern foot of the Qinling Mountains, and the deeply impoverished mountainous areas are highly representative. Finding the existing problems in the current process of rural revitalization provides the most direct research value for studying China's rural revitalization. In the sense of research, the investigation and research on the representative deeply impoverished mountainous areas in Shangzhou District will play a certain reference role for the study of rural revitalization in China. In the research content, the method of combining theory and practice is used. Through investigation and research in recent years, combined with the relevant data provided by the Shangzhou District Poverty Alleviation Bureau, it can be found that out of 124 poverty-stricken villages established and registered in Shangzhou District, 93,184 people are involved in poverty. We have discovered the existing problems and need to propose solutions to the problems.

## **2 The Background and Current Situation of Deep Impoverished Mountainous Areas in Shangzhou District**

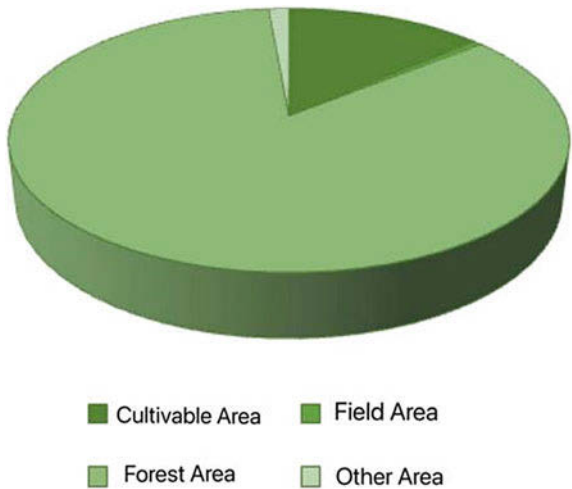
### ***2.1 The Background of Deep Impoverished Mountainous Areas***

Shangzhou District is the jurisdiction of Shangluo City. It is the city's political, economic and cultural center. Its total area is 2672 square kilometers, the average altitude is 880 m and the average annual temperature is 12.8 °C with four distinctive seasons and humid climate. There are 4 subdistrict offices, 30 township units, 409 administrative villages and 34 community committees in the region. The total population has exceeded 550 thousand of which the agricultural population is 409.2 thousand, accounting for a large proportion of the total population. Shangzhou District is located at the southern foot of Qinling Mountains, with strong structure, complex geomorphic condition, and seasonal rainfall. Geological disasters occur frequently. There are many mountains and many ditches in the whole area, which are goose palm-shaped, high in the north and low in the south, and high in the west and low in the east. There are six mountains in the area, namely Qinling, Mangling, Liuling, Guling, Xinkailling and Yunling. The four rivers, namely Danjiang, Nanqing, Banqiao and Dajing River, are located in the area. As shown in Fig. 1, the topographic map of Shangzhou District is shown. It can be seen that the areas of mountainous hills and valleys are very small, and most of them are distributed in mountainous sections. In agricultural land use (see Fig. 2), cultivable area accounted for only 14%, field area for 1% and forest area for 84%.

**Fig. 1** The topographic map of Shangzhou



**Fig. 2** The comparative map of agricultural land use



## 2.2 *The Current Situation of Deep Impoverished Mountainous Areas*

Poverty is a complex system. The causes of poverty such as remoteness, lack of resources, social isolation and low literacy level are subsystems of this complex system (Wang and Deng 2020). Under such a geographical environment, poverty in Shangzhou District began from the battle of poverty alleviation in 2016, 124 poor villages (including 34 deep poor villages) accounted for 30.3% of the whole area, 31,752 poor households accounted for 23.3% of the total number of households in the



region, and 103,540 poor people accounted for 24.8% of the population in the region (Shangluo City Project Development Bureau 2016), which reflects the extensive and deep poverty in Shangzhou District.

### 3 Problems of Poverty in Deeply Poor Mountainous Areas of Shangzhou District

Shangzhou District is a national-level poverty area and also one of the areas with concentrated deep poverty in China. In order to further investigate the poverty alleviation situation in this area, through consulting with the agricultural, poverty alleviation, human society and other departments in Shangzhou District, as well as visiting and issuing questionnaires to villages and towns such as Jiangshan Village in Yaoshi Town, Wuzhuang Village in Yangyuhe Town, Beichengzi Village, Haozhuang Village in Jinlingsi Town, 246 administrative villages (communities) with the task of poverty alleviation in the whole region are known, which are mainly concentrated in remote rural mountainous areas. The poverty analysis of the whole region is as follows:

#### 3.1 Weak Foundation, Difficult Poverty Alleviation

Since the rural revitalization in 2016, Shangzhou District has adhered to the “trinity” of professional, industry and social poverty alleviation in its work. According to the implementation plan of Shangluo City for poverty alleviation (2016–2020), it has carried out various forms of poverty alleviation, such as poverty alleviation by planting industry, employment, relocation, education development and ecological protection. Now, the rural revitalization in 2017, 2018 and 2019 is completed for statistics, as shown in Table 1.

Through statistical comparison, it is found that in the past three years, the rural revitalization power in the whole region has been relatively strong. There are 124 poor villages in total by 2019, achieving a breakthrough of zero in poor villages. The poverty incidence is decreasing year by year, indicating that the number of poor people is also decreasing year by year, which is inseparable from the achievements of rural revitalization in the whole region. However, although poor villages have

**Table 1** Statistics of rural revitalization in Shangzhou district in recent three years

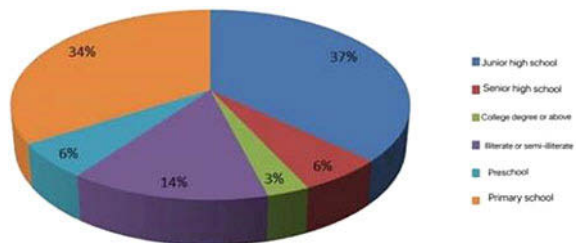
| Year | Number of people out of poverty | Poor village withdrawal | Household out of poverty | Poverty incidence |
|------|---------------------------------|-------------------------|--------------------------|-------------------|
| 2017 | 13 k                            | 41                      | 3.2 k                    | 17.8%             |
| 2018 | 42 k                            | 27                      | 11.2 k                   | 5.7%              |
| 2019 | 15 k                            | 56                      | 5.7 k                    | 1.3%              |

been eliminated, it does not mean that the whole region has been out of poverty. Since the data cleaning at the end of 2017, the poor accounted for 29.14% of the total number of Shangluo City, ranking second in the city. So far, the number of poor people in the whole region is large and scattered. More than 60% of the poor people live in remote mountainous areas. They live scattered and far away from the town, traffic is inconvenient, information is blocked, and natural resources are scarce, infrastructure is backward, and the economic base is weak. Finally, the vast majority of poor households are small and scattered in the production and processing industry, and they have more family workshops, which brings great difficulty to rural revitalization. The reasons are as follows. First of all, their ideology is conservative, fearing loss and trouble, unwilling to develop together and share interests. They develop industries by single household, and the scale of operation is generally small and scattered, so it is difficult to form large-scale production bases and large-scale operation households. Secondly, the economic foundation is weak, the number and scale of large and medium-sized enterprises, employment poverty alleviation bases and community factories in the region are small, and the employment posts provided for poor labor force are limited. In addition, the poor households in the deep part of the Qinling Mountains have a weak foundation, backward economy and shortage of funds. Finally, in the marketing of agricultural products, affected by the size of the market, most agricultural products lack of market and competitiveness, in the absence of market sales channels, there is a stalemate or even shutdown phenomenon. Besides, in terms of interest distribution, the model of “enterprise (zone) + base + poor households” does not completely bind interests with poor households in specific practice, resulting in most poor households not interested in them and unwilling to buy shares.

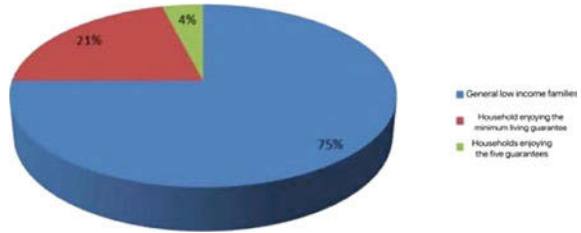
### 3.2 Weak Foundation, Difficult Poverty Alleviation

Through the survey, it is found that young people with working ability in poor villages are basically migrant workers, leaving mostly aged and weak or school-age children. The cultural quality of these groups is generally not high. Figure 3 shows the current situation of the educational level of the poor population in the whole region, in which the number of illiterate and semi-illiteracy reaches 34%. In the rural revitalization

**Fig. 3** The map of poor people’s educational level in Shangzhou district



**Fig. 4** The category diagram of poor households in Shangzhou district



and assistance work, they are old-fashioned, take things as they are, conservative in ideas, and lack of confidence in poverty alleviation. In addition, 25% of the poverty-stricken population are households enjoying the minimum living guarantee and five guarantees (see Fig. 4), and the poverty-stricken population over 60 years old exceeds 22.2%. These people have low self-development ability, poor independent poverty alleviation ability and weak awareness of poverty alleviation.

Many poor households are proud of poverty and do not want to get rich through their own labor. As long as they go to the government to ask for what they need or make trouble, they will get sympathy and assistance, which is their ‘ability’. Poverty in addition to irresistible objective reasons (Lv 2020) (such as the contradiction between population and land resources, natural disasters, etc.), under the influence of traditional culture, some poor households quite believe in “waiting for, depending on and asking for”. It is mainly manifested in the following aspects: lack of initiative, weak willingness to get rid of poverty, widespread phenomenon of watching and waiting. Some even fantasize that poverty alleviation is “waiting for the government to send money on the door”, thinking that “sunbathing by the root of the wall” can also “get rid of poverty and become rich and live a well-off life” in the future, and do not want to get rid of poverty and become rich through their own hard work. Poor households have low active participation and weak enthusiasm. Also, to a certain extent, poor households lack the right to speak, and have few opportunities to express their own interests. They are more passive participants, and have not effectively participated in the planning, decision-making, implementation and supervision of poverty alleviation projects, and have not become the protagonists of poverty alleviation. In addition, most of the poor households have poor family conditions, low cultural quality, and their self-development ability is weak. Most of the young and middle-aged labors go out to work, leaving those who are old, weak, ill or disabled and school-age children. Although most of the poor households have the willingness to get rid of poverty, they lack the corresponding development capacity or have insufficient ability to get rid of poverty and become rich.

### 3.3 Limited Poverty Projects and Imbalance in Industrial Inputs

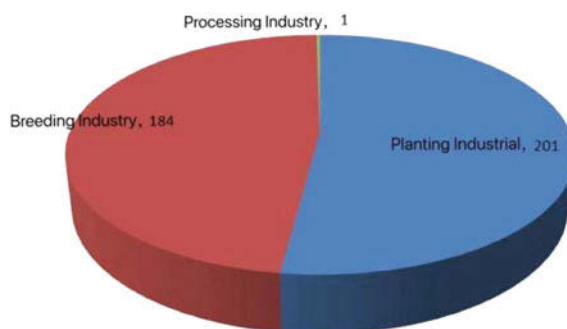
Shangzhou District is deeply affected by the geographical environment. The poor villages in the whole region are located in mountainous areas. The natural environment is relatively poor, and the infrastructures such as transportation, water conservancy and communication are relatively backward, which brings certain difficulties and challenges to poverty alleviation. Table 2 is a regional (county level) poverty alleviation project in 2020. Poverty alleviation projects are mainly concentrated in industrial poverty alleviation, employment poverty alleviation and education poverty alleviation. Industrial poverty alleviation is far greater than other forms of poverty alleviation in terms of number of projects or financial special investment, and is mainly dominated by planting and aquaculture. In the 843 professional cooperative projects in the region, the leading role is less than 30%. In addition, there are few large-scale production and operation projects, the degree of intensification is not high, and the ability to resist risks is poor, which makes it difficult to implement industrial poverty alleviation.

In recent years, in the development of industrial poverty alleviation, Shangzhou District has put forward a new idea of industrial and rural revitalization, which is “selecting industries according to village policy, strengthening measures according to household policy, and planning development according to demand”. It attaches great importance to the investment in poverty alleviation projects of planting and breeding industries, but invest less in product processing projects, which makes the driving force of poverty alleviation industrial operators weak. The leading enterprises, cooperatives, and large industrial households in the whole region have not achieved satisfactory results in poverty alleviation, and their role is not obvious. The

**Table 2** Summary of poverty alleviation projects in Shangzhou district (county level) in 2020

| Name of poverty alleviation    | Number of project | Main types of project                        | Main locations of service                                 | Special financial investment (RMB) |
|--------------------------------|-------------------|--|---|------------------------------------|
| Industrial poverty alleviation | 394               | Planting, breeding and processing industries | Yecun Town, Yaoshi Town, Yangyuhe Town, Yangxie Town, etc | 28,321.9                           |
| Employment poverty alleviation | 27                | Public welfare jobs                          | 18 towns  | 3082.2                             |
| Education poverty alleviation  | 14                | Skill training                               | 18 towns  | 7494                               |
| Financial poverty alleviation  | 5                 | Industrial insurance                         | 18 towns  | 2946.2                             |

**Fig. 5** Statistics of poverty alleviation project in Shangzhou district in 2020



main reason is that the policy guidance does not really form a complete ‘production, supply and marketing’ industrial chain (Liu 2020), which can not well promote agricultural modernization and develop comprehensively. Figure 5 is the statistical chart of poverty alleviation projects in Shangzhou District in 2020. It can be seen that the poverty alleviation industry is mainly concentrated in the cultivation and breeding industry, and the investment in the processing industry is seriously insufficient, resulting in the imbalance of the three industries. The basic industry is far greater than the investment in the processing industry, which is not conducive to the healthy development of the poverty alleviation industry.

### ***3.4 Various Causes of Poverty, Arduous Task of Poverty Alleviation***

By the end of 2019, after the dynamic adjustment of poverty alleviation throughout the region, all 124 poor villages in the region had withdrawn, but there were still 2892 households, 4680 people hadn’t got rid of poverty. Most of these poverty-stricken households are subsistence allowance poverty and special poverty support households, of which 1471 households are subsistence allowance poverty, accounting for 50.86%, and 1181 households are special poverty support, accounting for 40.84%. The reasons of poverty are further analyzed in Table 3.

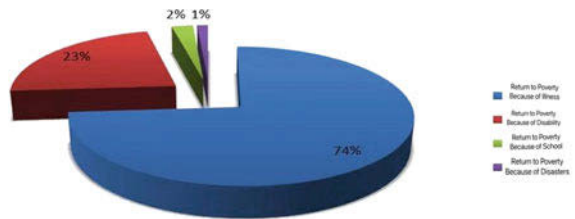
According to the field survey in Table 3, there are many causes of poverty. At the same time, there are more than two kinds of poverty-causing factors superimposed in some poor households without poverty alleviation, which further deepens the degree of poverty and increases the difficulty of poverty alleviation.

With the deepening of poverty alleviation, the problem of getting rid of poverty and returning to poverty is more prominent due to natural disasters, health problems of family members and the burden of education for children. As shown in Fig. 6, a comparative map of the cumulative factors of returning to poverty in Shangzhou District since 2017, in the past three years, there have been 84 households and 233 people affected by various factors. Among them, 62 households have returned to

**Table 3** Analysis of causes of poverty among households that haven't got rid of poverty in Shangzhou district

| Name                 | Disability | Lack of labor force | Illness | Lack of technology | Transportation | School | Disasters | Lack of fund |
|----------------------|------------|---------------------|---------|--------------------|----------------|--------|-----------|--------------|
| Number of households | 1336       | 727                 | 562     | 118                | 60             | 46     | 22        | 21           |
| Number of people     | 2156       | 919                 | 1012    | 254                | 143            | 92     | 46        | 58           |
| Proportion           | 46.20%     | 25.14%              | 19.43%  | 4.08%              | 2.07%          | 1.59%  | 0.76%     | 0.73%        |

**Fig. 6** The comparative map of poverty return factors in Shangzhou district since 2017



poverty due to illness, accounting for 74%, 19 households have returned to poverty due to disability, accounting for 23%, 2 households have returned to poverty due to school, accounting for 2%, and 1 households have returned to poverty due to disasters, accounting for 1%. From the chart, it can be seen that the objective factors such as natural disasters and human disasters, diseases and other irresistible factors directly affect the healthy growth of a family, and the task of preventing return to poverty in the ‘post-2020’ period is still very difficult.

The ultimate goal of rural revitalization policy implementation is to achieve precise poverty alleviation and prevent poverty-returning. Accurate poverty alleviation is the first step to achieve policy objectives. Only by drawing the root of poverty can the target group be prevented from returning to poverty and achieve the ultimate goal. In recent years, although decisive progress has been made in poverty alleviation in Shangzhou District, there are still many shortcomings in people’s livelihood. The ability to resist emergencies such as returning to poverty due to illness, disasters, old age and school is limited. Especially after major diseases or major natural disasters, the current rural cooperative treatment and bottom-up policy cannot be fully guaranteed. In addition, the dynamic supervision mechanism for poverty prevention is not perfect, and the task of eliminating the restriction of “unbalanced development” is still arduous.

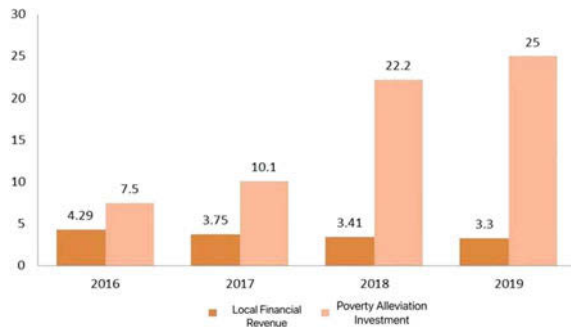
### 3.5 Limited Local Income and Large Funding Gap

According to the spirit of Notice on Accelerating the Key Work of Poverty Alleviation in the Whole Region in 2019 document issued by Shangzhou District Committee and District Government, Shangzhou District has increased investment in poverty alleviation year by year in the implementation of rural revitalization. Figure 7 shows the comparison of local government fiscal revenue and investment in poverty alleviation in the past four years. It can be seen from the chart that local fiscal revenue has not increased year by year, but the investment in poverty alleviation has shown an upward trend year by year. This shows that in the construction of poverty alleviation infrastructure, there is a large amount of capital demand, and the financial resources at the district level are very limited. In addition, in recent years, affected by the adjustment of the national credit policy to prevent financial risks, the scale of the application for CDB loans has been reduced, and the contradiction between the goal of “household poverty alleviation, village withdrawal, and district hat removal” and the demand for construction funds has become increasingly prominent.

## 4 Exploring the Strategy of Rural Revitalization in Severely Impoverished Mountainous Areas

On April 24, 2016, General Secretary Xi Jinping stressed during the symposium in Dawan Village, Huashi Township, Anhui Province that in order to fight against poverty, we should take stable poverty alleviation measures, establish a long-term poverty alleviation mechanism and persevere in poverty alleviation. Through the preliminary actual investigation, it can be seen that Shangzhou District has achieved remarkable results in the process of rural revitalization, but there are still problems. In order to prevent returning to poverty, we need to stand from the present and effectively solve outstanding problems, besides, we need to take a long-term view, establish and improve the mechanism of stable poverty alleviation.

**Fig. 7** The comparative map of local fiscal revenue and poverty alleviation investment in Shangzhou district from 2016 to 2019 (100 million yuan)



#### ***4.1 Increase Government Policy Guidance and Promote Industrial Scale Development Actively***

As a short-term strategy, rural revitalization is the process and means to solve the “issues relating to agriculture, rural areas, and rural people”. It is necessary to strengthen the policy support of major strategies, major actions and major projects for rural development, and strengthen the scientific guidance of the orderly flow of urban resources to rural areas (Zhang and Fu 2019). Combined with the poverty alleviation situation in Shangzhou District, the government needs to deal with the trinity governance pattern of government, society and market in policy guidance, and actively promote the development of industrial scale. Firstly, the government should correctly guide social organizations to actively invest in industrial poverty alleviation, guide private enterprises to actively carry out industrial poverty alleviation, employment poverty alleviation and public welfare poverty alleviation, and encourage private enterprises to participate in poverty alleviation through the establishment of poverty alleviation industrial investment funds. For example, according to the experience of “4 + X” industrial poverty alleviation in Shangzhou District, the four leading industries in the region are continuously consolidated, and a good environment atmosphere is created to attract enterprises to run community factories, promote the two-way appointment of cadres and the two-way exchange of talents, develop characteristic industries according to local conditions, and continue to implement the household industrial subsidy policy to expand the industrial scale. Secondly, the government vigorously implements poverty alleviation through consumption.

At present, poverty alleviation through consumption has become an important measure for the country to increase the production and marketing of agricultural products in poor areas, expand the marketing of characteristic agricultural products in poor areas, and consolidate the strategy of rural revitalization (Xi and Dangwei 2020). Also, the government should mobilize all levels of organs, institutions and all sectors of society in the region to participate in consumer poverty alleviation, take ‘purchasing instead of donations’, ‘purchasing instead of supporting’, ‘purchasing instead of helping’ and other ways to promote product sales and services in poor areas, ‘teach a man to fish is better than give him a fish’, drive the economic development of poor areas fundamentally, and constantly expand its market and scale. Finally, co-ordinate the project, funds and resources. Do bigger and stronger industrial projects, explore the development of asset leasing, production and processing services, agricultural development and other models, deepen the reform of rural property rights system. Entering the “post-2020 era” of poverty alleviation, in the flow of financial funds for poverty alleviation, the government’s fiscal responsibilities correspond to promote poverty reduction from quantitative to qualitative change (He et al. 2020). It is necessary to plan the investment of poverty alleviation funds from the policy to vigorously support the large-scale development of township enterprises, coordinate the central and local rural revitalization plans, do a good job in the actual investigation of the whole region, deepen the cooperation mechanism between government, banks and enterprises, play the role of financing guarantee companies



in the development of business in Shangzhou District, and implement the policies of “auxiliary guarantee loan”, “agricultural credit”, “mushroom farmers (enterprises) loan” and small poverty alleviation loans, so as to effectively solve the problems of project financing, loan and guarantee. In addition, the government should form a competitive mechanism when introducing social organizations to participate in rural revitalization. In the process of rural revitalization, it should increase the number of optional objects and form a competitive mechanism, from which more professional, institutionally sound and standardized social organizations should be selected to participate in rural revitalization, promote the competitiveness of industries such as planting, breeding and product processing, and avoid the monopoly of social organizations so as to effectively increase the income of poor households, so that the market has competitive pressure and development momentum. We should revitalize rural collective resources, promote the reform of rural collective property rights system in Shangzhou District, increase policy support for the confirmation of rights, fully define the rights of rural collective assets, (Section of the Ministry of Agriculture 2020) release the potential of collective economic development, strengthen the new collective economy, and improve the high-quality development ability of the new collective economy (Zhang 2020).

#### ***4.2 Promoting the Diversification and Integration of Poverty Alleviation Industries***

The gradual decline of traditional agriculture and the gradual rise of new modern agricultural industries are the inevitable trend of social and economic development (Chen 2020). Xi Jinping once said in the governance of the country that the development of industry is the fundamental strategy to achieve poverty alleviation. At the stage of rural revitalization, the focus is mainly concentrated on the accuracy, effectiveness and sustainability of industrial poverty alleviation model (Zhu and Nie 2020). Therefore, the key to rural revitalization is to strengthen the relationship between processing industry and other industries on the basis of planting and breeding industry, and improve the diversification and integration of industries. At present, the development of industrial diversification and integration in Shangzhou District: the whole region needs to change the past single industry situation, change the backward traditional agricultural development concept, combined with the local actual situation, from the agricultural industry poverty alleviation, tourism poverty alleviation, e-commerce poverty alleviation and other aspects of development, take industrial diversification, and even the combination of various industries to promote industrial upgrading and development. The whole region needs to expand the agricultural products deep processing industry and agricultural service industry with scientific and technological content, vigorously develop tourism agriculture, experience agriculture and other new formats, realize the integration of three industries and multi-functional development, and oppose the formal “short, flat and fast” projects.

In terms of industrial upgrading and development, the whole region needs to focus on environmental sustainability and ecological development, clarify the relationship between industrial upgrading and development and non-agricultural production, and promote the coordinated development of all aspects. The whole region needs to continue to implement educational poverty alleviation, health poverty alleviation, comprehensive guarantee, social assistance and other policies to ensure that the people out of poverty are always above the protection line when they encounter emergencies, accidental injuries, major diseases or other special causes.

### ***4.3 Strengthen the Skill Training and Education of Poverty-Stricken Households***

As it is indicated from the literature, the poverty alleviation work will be transferred to a new stage of solving secondary and new relative poverty after 2020, which provided higher requirements for the overall promotion of poverty alleviation. During this period, the salience represented by the typical poverty gradually cease to be existed. Moreover, the hidden poverty problem based on impoverished poverty and mechanical poverty has gradually established. Based on the discussion, it is concluded that the strengthening of skill training and education of poverty-stricken households plays an irreplaceable role in stimulating independent poverty alleviation.

Through the previous investigation in Shangzhou District, it can be seen that the educational level of poverty-stricken households is generally at mostly primary and secondary school education, indicating the lack of various skills and knowledge base. In this case, expanding the sustainability of education for poverty alleviation, collecting the demands of poverty-stricken groups and feeding back accurate poverty alleviation information is a prerequisite for informatization to help the revitalization of education and rural areas in ethnic minority areas, and guide people in these areas to refresh the mindsets of people by encouraging them to make full use of vocational education resources to promote development of vocational skills and rural practical technical training; to use various learning platforms to enhance awareness of policy and promote employment and entrepreneurship. In the meanwhile, it also advocated to build personal attributes of self-esteem, self-love and self-improvement as another key consideration of poverty alleviation.

### ***4.4 Dynamic Management of Poverty and Stop Returning to Poverty at the Source***

2020 is a key point and also a turning point for poverty alleviation. Firstly, focusing on guaranteed poverty alleviation, we should should combine top-level design with

practical innovation (Xiang and Hua 2019), and integrate new situations and circumstances with new ideas. we should also coordinate the utilization and management of the efficiency of financial funds to improve its quality (Huang et al. 2020) and ensure that the results can withstand the test. Those who falsified or deceived the superiors and subordinates should be corrected in time, and those with serious circumstances should be held accountable. Secondly, we should combine poverty alleviation with poverty governance, improve the dynamic information management system for poor households and non-poor households, and timely reach those who truly need help to make sure that they are out of the system and those who fall into poverty can be incorporated into the system again. These can be achieved by (1) multichannel early warning: We should establish a dynamic early warning and supervision mechanism for the poverty governance, collect early warning information and conduct dynamic supervision through such channels as follow-up visits by grassroots officials, self-declaration by those who return to poverty, big data platform comparison, and third-party evaluation; (2) classification management information: Based on the existing industries, employment, and household income and expenditure status of the registered non-poverty households, we should comprehensively study the stability of poverty alleviation among them, implement the classification management of those who are likely return to poverty, clarify the corresponding response plans, and grasp basic information of dynamic changes of poverty at any time. Then we should follow established standards and procedures to incorporate those rural people who fall back into poverty because of illness into the registered poor households (Liu and Tao 2020); (3) dynamic monitoring and identification: For those who are likely to return to poverty, we should follow the procedures of “field investigation, public evaluation, town government evaluation, and district-level identification”, and accurately identify and timely incorporate them into the poverty system so as to prevent them returning to poverty.

#### ***4.5 Multi-directional Financing for Strengthening the Project Management***

There will inevitably be problems of limited income and large funding gaps in the Deeply impoverished mountainous areas with backward economic conditions which need Multi-faceted financing and strength project supervision. On the one hand is to expand domestic demand. Making good use of local superior industries to drive the development of other industries, and establishing a brand of agricultural products with local characteristics to generate income for the locals. And on the other hand, increase revenue and reduce expenditure. strictly implementing project capital investment, implementing administrative disclosure, implementing project publicity, project reimbursement, and special fund accounting systems to avoid repeated investment in projects and invest limited funds in urgently needed projects.

## 5 Conclusion

From the fight against poverty to rural revitalization, China has now entered the “post-2020” era, and at the same time has entered a five-year transition period. Rural revitalization has made overall progress in China, and has successfully solved the current basic survival problem of the rural poor. However, it is located in a remote and impoverished mountainous area, affected by factors such as geographical location, backward concepts, and limited income. In the “post-2020” era, rural revitalization still has a long way to go in the next five years. How to promote the revitalization of the rural areas in the deeply impoverished mountainous areas, attract all kinds of talents to serve the rural areas, and continuously activate the driving force of rural development is a problem that is thought-provoking. We need to further explore and research, and we need to do all kinds of supporting work, do a good job in policy guidance, and do a good job in the dynamic management of poverty return. At the same time, strengthen the management of poverty alleviation projects and other practices to make due contributions to the critical period of rural revitalization in the next five years.

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# Influence of Digitalisation upon Jobs and Working Conditions: Towards Policy Response



Sharija Che Shaari and Sharifah Rahama Amirul

**Abstract** Digitalisation of work is a process connected to the usage of certain devices like laptops, smartphones and tablet computers combined with access to the internet. Digitalisation has led to the transformation of how work can be done and where it can be carried out. It leads to the rise in new jobs and working conditions such as flexible working arrangements (FWAs) and gig/platform workers. It is the objective of this paper is to examine the influence of digitalisation upon the working conditions based on the employment legislation currently enforced in Malaysia. This study raises two questions: firstly, to what extent the jobs and working conditions in Malaysia are influenced by digitalisation? Secondly, whether existing Malaysia's employment legislation can accommodate the changes to the jobs and working conditions resulting from digitalisation? It is submitted that the traditional working conditions (permanent staff, permanent office and fixed working hours) are no longer suitable to cater who are involved in the digital economy. This paper is written utilising analytical methodologies with the secondary descriptive data drawn from previous literature on the influence of digitalisation on job and working conditions. It is concluded that the existing employment legislation does not provide sufficient protection to the new forms of employment created by digitalisation. It is therefore recommended that a suitable policy is urgently needed to enable better protection to those who fall within the non-standard forms of employment.

**Keywords** Digitalisation · Non-Standard Forms of Employment (NSFE) · Flexible Working Arrangements (FWAs) · Self-employed

## 1 Introduction

Digital technologies are becoming increasingly prevalent which will soon become the backbone of the modern economy. As a result, advancing the digital economy

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S. C. Shaari (✉) · S. R. Amirul  
Universiti Malaysia Sabah, 88400 Kota Kinabalu, Sabah, Malaysia  
e-mail: [sharija@ums.edu.my](mailto:sharija@ums.edu.my)

is no longer an option for Malaysia as a whole, but rather a necessity. The political, economic, and sociological spheres have all been involved in the process of digital transformation for many years (Nagel 2020). Job creation, business disruption, and labour regulations are all being impacted by the tremendous increase in the pace of growth in information technology processing power, storage capacity, connectivity, and software applications (Neufeind et al. 2018). Since the inception of the internet, it has transformed the way things/jobs are done. Digitalisation also alters the working conditions and working environment, with varying consequences for various jobs. Digitalisation is a term that describes the phenomenon of adopting digital technologies in business and society.

Digitalisation has given rise to many wonderful opportunities and created many challenges as well. Digitalisation is described as the socio-technical processes surrounding the use of digital technologies that have an impact on social and institutional contexts (Drahokoupil 2016; Carby-Hall 2020). During the pandemic, the majority of organisations were forced to digitalise, but after a critical moment, they learned how to manage virtual operations, which may eventually turn into an opportunity for organisations to continue to move forward with the advancement of the digital world (LoGiudice et al. 2020). Digitalisation will almost certainly lead to structural change. The potential of major impact on the equipment and industrial composition in the future would lead to considerable effects on employment at the same time. An analysis by the McKinsey Global Institute (Novak et al. 2020) found that up to 59 million European jobs, or 26% of the total, are in danger in the short term as a result of cutbacks in hours or pay, temporary furloughs, or permanent layoffs, according to the research. Additionally, McKinsey Global Institute (Novak et al. 2020) also emphasised that the roles in customer service and retail, for example, that are most vulnerable to pandemic job losses coincide to some extent with roles in other industries that are most vulnerable to displacement due to digitalisation and automation.

Parli (2021) in his seminal work highlighted that the conventional relationship between employer and employee is changing as a result of digitalisation; this also affects workers' participation rights within the company. Therefore, as a result of digitisation, a range of challenges to jobs and working conditions arise. The quest for solutions for this problem is a long-standing one. There is a need for policymakers to review the existing employment policy, conventional employment relationship and legal status, which for many years have been defined by a sign of stability, are now being impacted by the advent of digitalisation.

Digitalisation is a technology that helps organisations be more productive and work more efficiently while lowering costs. It also paves the way to work transformation which entails reorganisation of work and, as a result, changes how people work. Employees may be working in new ways as a result of the increased use of technology in everyday work and changes in working hours.

## ***1.1 Background of Digitalisation***

Digitalisation is a key component of global technological progress. It started in 1969 when the internet was introduced (Dean 2018). The beginning of the digital revolution may be traced back to the 1980s. Manufacturers such as Apple, Atari, Commodore, and IBM were among those that introduced the first cheap personal computers to the market at the time. The World Wide Web was first made available to the public in 1993 by the European Organization for Nuclear Research (CERN). In the last 30 years, chip manufacturers have improved the computational capacity of microprocessors by a factor of more than 20,000. Today, the majority of families are active on social media, do their banking online, and make purchases online, among other things (Peetz 2019). The increasing use of digital devices has resulted in changes in products, services, and processes. It has also changed the way people work. An exploratory study on the impact of digitalisation on job content and quality was conducted by the European Social Observatory (OSE). The findings revealed that new technologies influence how work is carried out (Görmüş 2019; Warning and Weber 2018). The influence of digitalisation upon working upon jobs and working conditions are expected to be increased. As mentioned by Nagel (2020), the whole world was caught off guard by the COVID-19 pandemic, which has ramifications for working situations. Nagel (2020) added that voluntary precautions against COVID-19 and mandatory government restrictions have compelled businesses to remote work. This rise demonstrates that a significant portion of working from home needs to integrate current technology into everyday work routines and increase the usage of digital technologies. The world is awash in both optimistic and pessimistic scenarios about the increasingly fragmented, digitalised, and flexible transformation of work that is taking place around the world (Neufeind et al. 2018).

## ***1.2 Digitalisation in Malaysia***

The Government of Malaysia recognised the possibility, as well as the difficulty, that the digital economy presents as a new economic growth engine. Malaysia is very active in promoting the digital economy ranging from digitising public services to expanding connectivity to encouraging digital entrepreneurship. MDEC, an agency under the Ministry of Communications and Multimedia Malaysia (MCMC), is empowered to accelerate the nation's digital transformation as the new growth engine. The strong commitment from the government was evinced when Malaysia became the first country in the world to establish a Digital Free Trade Zone in 2016. It is a special trade zone providing a state-of-the-art platform for small and medium-sized enterprises to promote e-commerce. In 2018, the contribution of the digital economy to Malaysia's economy increased to RM267.7 billion, an increase of 6.9% (DSOM 2019).



It is the role of the government to act as a catalyst by establishing a policy framework that allows the nation's digital objectives to be accomplished. Recognising this, the Malaysian government on 19 February 2021 launched the MyDIGITAL initiative, which includes the Malaysia Digital Economy Blueprint. MyDIGITAL will complement the national development policies such as the Twelfth Malaysia Plan (12MP), and the Shared Prosperity Vision 2030 (WKB 2030). The goal of MyDIGITAL is to assist Malaysians to embrace digitalisation which will eventually enhance their quality of life and living standards. It is the aim of the Malaysia Digital Economy Blueprint to stimulate the nation's economy by ensuring that digitalisation delivers sustainable economic and social benefits as this digital economy is growing faster than any other industry. MDEC is entrusted to spearhead the digital initiatives announced in MYDIGITAL through three strategic thrusts—empowering Digitally Skilled Malaysians, accelerating Digitally-Powered Businesses and attracting Digital Investments. It is predicted that the digital economy will account for 22.6% of Malaysia's GDP and create 500,000 jobs by 2025. Malaysia can boost the nation's productivity, encourage innovation, and enhance livelihoods by leveraging digital technology to the fullest.

### ***1.3 Objectives***

The digitalisation of work is a process connected to the usage of certain devices like laptops, smartphones and tablet computers combined with access to the internet (Daubler 2016). It leads to the rise in new working arrangements such as flexible working arrangements (FWAs) and gig/platform workers. The traditional working conditions (permanent office, permanent office and fixed working hours) are designed to cater to the standard form of employment, which may no longer be suitable to cope with the new development of working conditions influenced by digitalisation. Hence, it is the objective of this paper is to examine the influence of digitalisation upon the working conditions based on the employment legislation currently enforced in Malaysia. This study raises two questions: firstly, to what extent the jobs and working conditions in Malaysia are influenced by digitalisation? Secondly, whether existing Malaysia's employment legislation can accommodate the changes to the jobs and working conditions resulting from the digitalisation? Thus, recommendations for adapting workplace policy to the dramatic changes currently taking place will be brought to light. This paper does not claim to be a full study of this topic, but it does raise some of the concerns for scientific discussion and highlights the importance of digitalisation in the evolution of workplace policy in Malaysia.

## 2 Literature Review

In order to achieve the insight and up-to-date information about the influence of digitalisation on jobs and working conditions, a literature review was undertaken. Numerous scientific articles and journals research on this topic, mainly from information technology (IT), economics, social science, or even sociological point of view. It generates a plethora of academic study subjects all around the world. It seeks to deepen the understanding of the influences of digitisation on jobs and working conditions. Most of them focused on how digitalisation impacts business performance and worker productivity (Kuusisto 2016). However, this study intends to examine its impact upon employment situations, primarily from the employment policy perspective.

Digitalisation is a term that describes the phenomenon of adopting digital technologies in business and society. Furthermore, the term also covers the affiliated changes in the connectivity of individuals, organisations, and objects (Urbach and Roglinger 2019). Digitalisation paves the way to work transformation which entails reorganisation of work and, as a result, changes how people work (Anderson-Connolly et al. 2020). Employees may be working in new ways as a result of the increased use of technology in everyday work (Béland et al. 2020; Spurk and Straub 2020) and changes in working hours (Von Gaudecker 2020).

Macias et al. (2015) identified four key implications of digitisation for businesses. The first is that new technologies produce new jobs and processes which result in changes in activities and occupations. The second change concerns working conditions since technological advancements have resulted in increased physical, psychological, and environmental demands. In addition, there have been major shifts in employment conditions (e.g., the contractual and social conditions of the work). Finally, there have been changes in industrial relations, such as how employers and employees structure their relationships and resolve problems. This current study will nevertheless focus on the implications of employment and working conditions. The literature can be grouped into two main categories which will be discussed in turn.

There are projections that digitalisation would result in significant job losses. Many fear that nearly half of the jobs will be jeopardised as a result of digitalisation, and may be lost entirely within the next two decades. The research conducted by Frey and Osborne (2013, 2016) is undoubtedly the most well discussed in this area of study. Frey and Osborne pick jobs with the most routine duties and calculate how many jobs could be lost due to digitalisation. Within the next 20 years, they estimate that digitalisation will replace around 47% of total US employment. More than 5 million jobs will be lost globally between 2015 and 2020 (Frey and Osborne 2013). Bowles (2014) replicates Frey and Osborne's study for the European Union (EU), concluding that in the next decades, between 47% (in Sweden, similar to the US) and well over 60% (in Romania) of the EU workforce will lose their jobs owing to digitalisation. Peetz (2019) reported that a great deal of speculation and excitement has surrounded technological advancements and their potential impact on the future

of work, including whether or not they will result in a net loss of jobs and what impact they will have on the way work is organised.

Many studies have found that fears of major employment losses are unfounded. Möller (2017) refuted that the fear of digitalisation will leave many unemployed. Möller further argued it is even possible that, instead of a decrease in employment, digitalisation would increase. Controlling, monitoring, and maintaining the new digital technology will necessitate the hiring of specialists. They, in turn, will need to be educated on how to use the new technology. Digitalisation can also lead to product, process, and service improvements, as well as increased productivity and lower prices (Möller 2017). As a result, the overall employment effect may be favourable to all stakeholders. Burgess and Connell (2020) agree that work procedures, work identity, and the workplace have all been changed by new technologies, notably new ways of working (i.e. mobile and homework). Pärli (2021) further added that the conventional relationship between employer and employee is shifting as a result of digitalisation; this also impacts workers' involvement rights within the organisation.

The numbers of gig workers are on the rise globally due to its flexibility. Flexible working arrangements allow those with a greater care burden, such as mothers with young children or adults caring for ageing parents, to work while caring for their dependents. Some employees may also benefit from the flexibility nature resulting from non-standard employment because it entails more job autonomy by being able to select projects that better match their interests and abilities. Surprisingly, Sazali and Tumin (2020) have put forth an argument that the NSFE is less desirable than standard employment due to three primary reasons: it increases job insecurity, provides less social safety, and provides fewer opportunities for progress. Pärli (2021) highlighted that there is compelling evidence that digitalisation is transforming the way labour is organised. This encompasses workplace, workforce specialisation, and working conditions; even labour legislation is being challenged, with basic labour rights being attacked. Thus, it is pertinent to analyse the influence of digitalisation on jobs and working conditions.

### 3 Methodology

This paper is written utilising analytical methodologies with the secondary descriptive data drawn from previous literature on the impact of digitalisation on job and working conditions. It provides a general overview of a few papers which are categorised by similarity. Firstly, this study identifies the source of data to be used in the paper. There were several types of documents used such as research articles, government archives (letters, reports, notes, memos, statistics, government websites, news, press releases, blueprints, policy and law handbooks and so forth), organisational or institutional documents. These documents or shreds of evidence will be utilised for systematic evaluation in research work to study the influences of digitalisation on jobs and working conditions. To obtain timely research review and evidence for

this study, data collection protocol has been set to familiarise with the documents to capture definitions, meanings, processes, and types of information. As part of this process, this study has created synthesis questions based on its key questions and objectives. After collecting the important data or evidence from selected sources, the data was then categorised into important information such as a short phrase that symbolically assigns a summative, salient, essence capturing or evocative attribute for portion data (Wicks 2017). Lastly is the critical analysis of interpreting, evaluating and reporting the data into valuable information. The case laws are also referred to corroborate the analysis of relevant statutes.

## 4 Discussion

Throughout the past half-century, numerous advances in technology have significantly affected the workplace. With the advancement of digital technology and the availability of high-speed internet, many industry players have embraced digitalisation. As a result of digitalisation, jobs and working conditions have been fundamentally transformed, moving beyond the boundaries of a permanent office and normal working hours. This study raises two questions, firstly to what extent the jobs and working conditions in Malaysia are influenced by digitalisation? Secondly, whether existing Malaysia's employment legislation can accommodate the changes to the jobs and working conditions resulting from digitalisation?

The employment legislation is segregated based on three different regions in Malaysia, they are almost identical but for the arrangement of the sections (Shaari and Amirul 2020). They are the Employment Act 1955 (Act 265) (hereinafter referred to as EA 1955), the Sabah Labour Ordinance (Cap 67) (hereinafter will be referred to SLO Cap 67) and the Sarawak Labour Ordinance (Cap 76) (hereinafter will be referred to SLO Cap 76). However, the focus of this article is based on the EA 1955.

The legislation and the workplace policy in Peninsular Malaysia cater to the standard form of employment as evinced by Part XII of the EA 1955. The statute lays down minimum terms and conditions for the employees. However, the respective statute does not prohibit employers from providing terms and conditions that are more favourable to employees. Nevertheless, less favourable terms than the provisions in the EA 1955 (both SLOs as well) shall be null and void, and the terms provided by these statutes shall be substitute thereof.

The statutory definition of 'employee' is therefore important, as the EA 1955 (both SLOs as well) are only applicable to employees and their employers. These statutes do not apply to those who do not fall within the definition of 'employee'. Who is an employee under the EA 1955? The definition of 'employee' is provided by Sect. 2(1) of the EA 1955 which is further explained by the First Schedule. The first category, any person who has a contract of service with the employer and irrespective of the job title, earn RM2000 and below in Peninsular Malaysia (RM2500 and below in Sabah and Sarawak). The second category is any person who has a contract of service with the employer and irrespective of their salary, by the nature of their work they are

manual workers, supervisors to the manual workers, domestic workers, those who work in a vessel registered in Malaysia and those who operate vehicle either ferry passenger or goods.

For those whose wages are above the threshold, they do not fall within the ambit of the EA. They are left to fend for themselves unless they join a trade union or there is a joint consultative council (JCC) representing them. Their terms and conditions of employment are based on the agreed terms between them and their employers. It may not look as simple as it sounds as many factors may affect employer-employee relations. It may depend upon the workplace culture, the employer's leadership and so forth. Hence, it is important to analyse how digitalisation is changing jobs and working conditions.

#### ***4.1 How It Affects the Jobs and Working Conditions***

The organisation of work has fundamentally changed as a result of digitalisation, taking it beyond the confines of a fixed workplace and standard working hours. As a result, digitalisation raises a variety of challenges in the jobs and working conditions, thus the policymakers need to revisit the established legal notions like the legal status of employment, the obligation of the parties in the employment relationship, and so on. Traditional legal ties that have been distinguished by the indication of stability for many years are also affected by digitalisation. The digitalisation process has resulted in the introduction of new types of employment contracts, as well as changes to the rights and obligations of the employment relationship. The digitalisation process inexorably influences new forms of rights, obligations, and responsibilities. The EA 1955, on the other hand, is conservative in this respect.

The literature has shown there is an emerging form of new jobs with the advancement of digitalisation. The standard form of employment has been disrupted with the advancement of digitalisation. Standard employment, which normally comprises of full-time employees who are employed on a long-term basis (permanent staff). Standard employment means that workers are willing to let the employers be bestowed with managerial prerogative, in exchange for work security and continuity (ILO 2018).

Meanwhile, the non-standard form of employment (NSFE) is the opposite of standard employment. Digitalisation has created many new types of non-standard employment such as becoming an e-hailing driver for Grab, Foodpanda runner and so forth. The NSFE has provided job flexibility, including flexibility in the employment relationship, flexibility in scheduling work, and flexibility in the completion date. They are known as gig/platform workers.

Sadly, the standard employment contractual relationship does not apply to the gig/platform workers. They are not governed by the EA 1955 as there is no contract of service between them and the companies providing the digital platform for them. The question is whether these gig/platform workers are considered as an independent

contractor, meaning they are the third party rendering their services to Grab, Foodpanda and the likes? Or can they be regarded as a self-employed person? The question of whether one is an employee or an independent contractor persists in the adjudication system, as protection and reliefs are statutorily provided only to employees (workmen), and not independent contractors. In short, a person is regarded as an independent contractor if there is no element of control between the company and the service provider (independent contractor). The test of control is enunciated in the case *Short v Henderson* (1946). Based on the nature of the job as the Grab driver, Foodpanda runner and so forth, the gig/platform workers can set their own hours of work. Yet they are subjected to managerial control by the companies that provide the platform for them to gain access to their customers/passengers as the case may be. Thus, the element of control exists. Once there is an element of control exists between the gig workers and the companies, they cannot be regarded as independent contractors. Unfortunately, the situation has yet to be legally contested in Malaysia.

The distinction between “employee” and “independent contractor” is becoming hazier. This test had been adopted by the Court of Appeal in the case of *Mary Colete John v South East Asia Insurance Bhd* (2010), a contract of service is predominantly determined by the degree of control one has over the work and also through the terms of one’s contract.

As above mentioned, the EA 1955 is designed to protect those who fall within its coverage. It is submitted that the EA 1955 is archaic as it does not keep abreast with the changes in the labour market. Employers and employees are increasingly looking for mutually beneficial flexible working arrangements rather than traditional employment agreements. The situation is further exacerbated with the advancement of the digital economy. The NSFEE such as part-time workers, casual workers and freelancers have existed for ages, but digitalisation has created a new form of non-standard employment owing to the rise of the gig/platform economy. The working conditions for those gig/platform workers are not tied to fixed hours as enunciated in Sect. 60A of the EA 1955. These workers are not accorded legal protection should they are being exploited by unscrupulous companies. Under Sect. 60A of the EA, employees must not be required to work for more than five consecutive hours without a period of leisure of not less than 30 min, or for more than eight hours in one day, or spread over more than 10 h in one day, and for no more than 48 h in one week. Furthermore, no employer is allowed to require any female employee to work in any industrial undertaking between 10 pm and 5 am, nor work for a day without having had a period of 11 consecutive hours free from the work.

Another issue arises with gig/platform workers when they are not accorded social security protection. The numbers of accidents among the gig/platform workers using motorcycle are on the rise. Since they are not regarded as employees—thus they are deprived of social security benefits in the event of any accidents arising out of their job. The government has enacted the Self-Employment Social Security Act 2017 (Act 789) which came into operation on 13 June 2017. Any citizens or permanent residents of Malaysia who carry out a self-employment activity are eligible to register under this social security scheme. The said scheme will insure them against any

employment injuries including occupational diseases and accidents during work-related activities. In the beginning, this scheme is compulsory for the self-employed in the Passenger Transportation Sector which is taxi, e-hailing and bus drivers. However, the scheme is extended to 19 other sectors with effect from 1 January 2020. To date, the gig/platform workers in Malaysia are considered self-employed. Meanwhile, the situation is different in the United Kingdom following the case of *Uber BV & others v Aslam & others* (2021), the Supreme Court judges unanimously upheld that Uber drivers working for e-hailing Uber Technologies Inc. are to be categorised as “workers” under employment law as they neither fit the definition of “self-employed” nor “independent contractors”.

Hence, it is submitted that the government should introduce a policy that protects the interest and well-being of those who are taking part in the gig/platform economy. Therefore, the policymakers must act quickly to ensure that suitable policy is in place.

## 4.2 FWAs in Malaysia

By embracing digitalisation, it has created many new types of jobs and changes the working conditions as people are not tied up to the office. Thus digitalisation creates flexibility in terms of work schedule, hours of work and place of work. Due to its nature of flexibility as people can work anywhere and anytime provided there is the availability of internet. Hence, digitalisation enables flexible working arrangements (FWAs) for those who have to take care of their elderly parents, family members and/or young children.

FWAs, however, are not extensively used in Malaysia but are gaining traction due to the changes in socio-economic and demographic characteristics as well as advanced technology (Amirul 2020; Burgmann et al. 2012; Cannon and Elford 2017). The unprecedented pandemic has caused a global issue as nobody is prepared for it. The government of Malaysia has to make bold decisions by introducing standard operating procedures (SOP) to curb the spread of COVID-19 such as encouraging employers to allow the employees to work from home and working at the office by rotation to minimise the numbers of employees at the workplace. In the era of pandemic crisis, FWA implementation is becoming more evident in Malaysia, as businesses have no options but to keep their operation through FWAs such as working from home (WFH), job rotation, flexible hours and so forth. The number of people who worked mostly from home was barely approximately 5% before the outbreak. The number of individuals working from home has gradually grown over the previous five years, but remote working has exploded amid the Covid-19 pandemic crisis (CIPD 2021). Malaysia is not an exception, as the government’s movement control order has compelled a large number of organisations in the country to implement FWAs, particularly WFH, to continue operating at a difficult period of pandemic crisis for the sake of their survival. The advancement of digitalisation in Malaysia has enabled employees to be able to work from home. The companies



can continue their business operation as employees are working from home. The companies are able to survive though business is not making as many profits as they used to do. Prior to COVID-19, the employers in Malaysia's private sector were unreceptive towards FWAs (Shaari and Amirul 2020). However, it is crucial to highlight that there is a considerable rise in FWAs amidst the outbreak. For example, many organisations have stepped forward to offer employees more flexible work arrangements during the COVID-19. It leads to the question of whether the changes in Malaysia's private sector is based on the genuine motive to ensure the survival of their operations and to ensure the livelihood of their employees, or could it be for any other ulterior motive such as to grab the incentives offered by the government. Nevertheless, such a provoking thought is not within the ambit of this paper. The most recent incentive by the government towards FWAs implementation is under the *Pelan Jana Semula Ekonomi Negara (PENJANA)*, also known as the National Economic Recovery Plan, as a means of cushioning Malaysia's economic recovery and propelling local enterprises. Amidst the pandemic crisis, the government of Malaysia offered tax deductions to adjust to the new normal and assist companies in adopting FWAs or upgrading existing FWAs (effective 1st July 2020).

The rise of FWAs amidst the pandemic has raised several employment concerns particularly issues of fairness and equal treatment. There is a need to strengthen rights, for example, the right to privacy, the right to reasonable limitation of working hours and the right to be involved in decisions that concern the employees (Pärli 2021). In Malaysia, there is no clear public policy or regulation that addresses the related rights concerns as highlighted by Pärli (2021). As reported by Shaari and Amirul (2020), there is no legislation or regulation governing FWAs in the private sector that applies to the entire country of Malaysia. When a private-sector organisation decides to apply these alternatives, it must establish its own FWA rules and processes.

## 5 Implications

The implications out of this study can be categorised into two, namely the implications for the existing knowledge and the practical implications which will be discussed in turn.

### 5.1 *Implication for Existing Knowledge*

This study makes three major contributions to the existing knowledge. First, this study adds to the existing literature on the influence of digitalisation on jobs and working conditions. Secondly, this study provides an insight into the application of the employment legislation with regard to its coverage and the working hours. Thirdly, this study tries to briefly bring to light the need to have the policy to protect



those who are involved in the digital economy, which has yet to be explored by local academics.

## 5.2 *Practical Implication*

The insights derived from this study may have various profound policy implications for employees, employers and society in general. The findings shall also be useful to the policymakers in protecting those who are involved in the digital economy. The government must provide an enabling environment to protect those who are involved in the digital economy. A change in mindset is very crucial for an effective policy to be successful.

## 6 Recommendations

Many workers are involved in the digital economy due to the flexible nature of the job and working circumstances. They can earn some money while taking care of their elderly parents and/or their young children. Thus, the influence of digitalisation has created many new forms of jobs and working conditions that are different from those working in the standard form of employment. Sadly, the protection accorded to them is very minimal. They are treated as self-employed which can be further questioned. For those who choose FWAs, they are at the mercy of the employers' discretion as we have yet to have a policy governing FWAs in the private sector, unlike the FWAs policy and legislation in the United Kingdom, Australia, and New Zealand. the most recent one is a tax incentive for FWAs to support local businesses dealing with a pandemic crisis (Penjana 2020). What can be seen from the existing literature, through incentive policies, the government mobilises external pressure that has a favourable or adverse effect on the firm's behaviour via incentive programmes (Zhang and Wang 2017). For instance, the government can directly regulate behaviour through command-and-control regulations. Alternatively, it can use market-based policies such as taxes and subsidies to encourage private decision-makers to alter their behaviour (Amirul 2020).

In order to have a better understanding of the concept of government incentives, it is essential to capture the meaning of government tools or instruments that play roles in promoting industrial change. A government tool is a conceptualisation of the critical decisions governments make about how to execute their policies, which may involve applying knowledge, practises, and intuitions of policy-makers as they implement the policy option (John 2011). The extent to which approaches to government tools dig into the "how" and "who" of policymaking differs according to the examiner (Margetts and Hood 2016). A better understanding of the government tools/instruments employed in implementing the FWAs incentive would be beneficial to the research in two ways. It first aids our understanding of the internal organisation

or institutional complexity of government and the variations between policy-makers within the governmental framework of the two countries. Another step is to think about what makes each tool unique and how they influence individual, collective, and organisational behaviour in society at large (Margetts and Hood 2016).

John (2011) categorised government instruments into three characteristics: top-down (law and regulation; public expenditure and taxation), internal to the state (bureaucracy and public administration; institution), and non-standard policy (information, persuasion and deliberation; network and governance). Other scholars (Davis et al. 2020) identified four types of policy instruments: policy through advocacy is the process of making an argument, educating or convincing others; policy through money is the process of the government using spending and taxing powers to shape activity; policy through direct government action is the process of providing services; and finally, policy through law is the process of making a law that directs government action.

What can be seen so far, the characteristic Malaysian government FWAs incentive is more likely to be an advocacy and persuasion tool (John 2011; Davis et al. 2020) because the government is supporting and enabling organisations to implement FWAs through incentives, rather than enforcing the engagement of organisations through the power of legislation. The government FWAs incentive is also classified as a non-standard policy as it involves persuasion techniques in promoting FWAs practices among local private businesses (John 2011). The Government FWA incentives are a non-coercive form of action that involves communication, contract, expenditure and taxation incentives (Davis et al. 2020). The effectiveness of non-standard policies is an intriguing question because a policy without an enforcement or compliance capability (the power of law to engage organisations to implement FWAs) to change local business practices is uncertain. Davis et al. (2020) highlighted several issues that could be encountered in implementing a policy that can derail a policy process, including incomplete specification, inappropriate agency, conflicting objectives, incentive failures, conflicting directives, limited competence, and limited competence inadequate administrative resources and communication failures.

## 7 Conclusions

Malaysian employment legislation is outdated as it does not cater to the need of the workers particularly those who are involved in the gig/platform economy and those who would like to choose for FWAs. The existing legislation covers the standard form of employment. The EA 1955 (similarly both SLOs) are very rigid in terms of working hours. It is therefore concluded that the failure of legislation to reconcile the needs of companies and gig workers and those who opt for FWAs. The government has started the ball rolling by initiating the incentive for the companies to promote FWAs during the pandemic. Hence, it is pertinent for the government to establish a policy that protects those who are involved in the digital economy. As Malaysia is on the road to becoming a regional champion in the digital economy, it is time

for the stakeholders to take similar measures to protect the welfare and interest of the workers of digital economy. It is therefore recommended that legal reforms be urgently needed to enable better protection to them. It has to be cautioned that this study does not claim to be a full study of the topic, but it does raise some of the concerns for scientific discussion and highlights the importance of digitalization in the evolution of employment policy. In sum, digitalisation has indeed transformed the way how people do their work which also affects the working conditions.

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# Foreign Agricultural Markets: State and Challenges in Sustainable Development



Nataliia Mazur, Vadym Tkachuk, Nataliia Sulima, Ivan Semenets, Andriy Nikolashyn, and Alona Zahorodnia

**Abstract** The article presents the main results of the study of the volume and structure of foreign trade of Ukraine and its place in international trade operations, outlines the main tendencies of export and import transactions in agricultural products and commodities. Quantitative and price indices of trading conditions have been analyzed in order to diagnose the place and importance of Ukraine in foreign agricultural markets and to outline ways to optimize the structure of foreign trade operations. Indices of terms of trade «price» and «quantitative» characterize the extent to which a country wins (loses) by changing the price (quantity) of goods in foreign trade with a particular country (countries) for the relevant period of time. The indicator of the terms of trade measures the relative dynamics of export prices over a certain period and is calculated for the analysis of foreign trade activity, which is measured by the ratio of average export earnings of goods and average costs of imports over a certain period of time. The results showed that in 2018, the price index of terms of trade decreased by 2.2%, quantitative - increased by 2.9%, ie terms of trade slightly deteriorated. The positive fact is that in 2017, all the goods selected for the study were competitive in the foreign market, which confirms the positive value of the RTA indices for these goods. The most competitive in the world market is sunflower oil. The study concluded that it is established that development of foreign markets, expansion of export orientation of production, which should become one of the main factors of economic growth of the majority of industries, are extremely important for the agrarian sector of the economy of Ukraine. Always the one who has the processing industry wins. The pace of development of manufacturing should exceed the rate of GDP growth in the country. We need to have at least 5% growth in 20 years

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N. Mazur · I. Semenets · A. Nikolashyn  
Kamianets-Podilskyi National Ivan Ohiienko University, Kamianets-Podilskyi, Ukraine

V. Tkachuk (✉) · N. Sulima · A. Zahorodnia  
National University of Life and Environmental Sciences of Ukraine, Kiev, Ukraine

N. Sulima  
e-mail: [\\_s\\_n\\_@ukr.net](mailto:_s_n_@ukr.net)

A. Zahorodnia  
e-mail: [akinterdep@ukr.net](mailto:akinterdep@ukr.net)

to make up. Therefore, in the coming years, the processing industry should develop at a rate not lower than 7–8% annually.

**Keywords** Foreign economic activity · Quota · Export · Import · Foreign agricultural markets · Price indices · Competitiveness

## Abbreviations

|         |   |
|---------|---|
| DCFTA   | Deep and Comprehensive Free Trade Area;                     |
| UCG FEA | Ukrainian Classifier of Goods of Foreign Economic Activity; |
| RXA     | Relative Export Competitiveness Index;                      |
| RMP     | Relative Import Index;                                      |
| RTA     | Relative Trade Preference Index;                            |
| SDG     | Sustainable development Goals.                              |

## 1 Introduction

The economic model in the modern world must have a balance of open and closed markets so that poorer countries can develop not only their own resource base but also production. This was stated by the Secretary General of the Roman Club Graham Maxton during the Kyiv International Economic Forum (KIEF) in the context of the plenary session «Global Challenges to the New Economic Reality». «For the last 30 years we have been told that open markets are very good, but that does not mean that they have an advantage in the economy», said Graham Maxton. «The idea that full openness is very good in the world has taken hold, but the ideas of balancing open and closed markets need to be rethought. Not only should we now go for the old systems that became popular 30 years ago in the West, but also think of new inclusive systems» (Maxton 2017).

There is one interesting pattern in the global economy. In the long run, commodity prices are falling relative to prices for services and labor. Therefore, a country that sells raw materials always loses to a country that produces higher value added end products.

For the last 5 years, the Ukrainian economy has been in a state of profound change. After the sharp economic downturn, a moderate lifting process began in 2014 and 2015. Today, foreign trade is a key factor in the country's economic recovery. In the sphere of export we observe a steady development dynamics which is constantly gaining momentum. The European Union holds an important place for Ukrainian companies in their entry into new markets. Thanks to the Free Trade Agreement with the EU, Ukraine has gained better access to the European market. In particular, exports to Germany during the first four months of 2018 increased by 35.5%

compared to 2017. These growth rates testify to the strong economic potential of Ukraine, both agricultural and industrial, covering the fields of mechanical engineering, metalworking, food processing, woodworking and furniture, textiles and footwear, etc. (How to start exporting goods 2019).

The number of undernourished people has dropped by almost half in the past two decades because of rapid economic growth and increased agricultural productivity. Many developing countries that used to suffer from famine and hunger can now meet their nutritional needs. Central and East Asia, Latin America and the Caribbean have all made huge progress in eradicating extreme hunger.

Unfortunately, extreme hunger and malnutrition remain a huge barrier to development in many countries. There are 821 million people estimated to be chronically undernourished as of 2017, often as a direct consequence of environmental degradation, drought and biodiversity loss. Over 90 million children under five are dangerously underweight. Undernourishment and severe food insecurity appear to be increasing in almost all regions of Africa, as well as in South America.

The SDGs aim to end all forms of hunger and malnutrition by 2030, making sure all people – especially children - have sufficient and nutritious food all year. This involves promoting sustainable agricultural, supporting small-scale farmers and equal access to land, technology and markets. It also requires international cooperation to ensure investment in infrastructure and technology to improve agricultural productivity. The purpose of the study is to determine the place of Ukraine in the external agrarian markets by assessing the competitiveness and relative trading advantages of the main agricultural products and commodities (Goal 2: Zero hunger 2019).

The challenges of today's world are bringing many pressures to bear on agriculture: population growth, the impact of climate change, the need to reduce greenhouse gas emissions in agriculture, rapid development of the emerging economies and growing instability associated with land, water and energy shortages (French et al. 2014).

Well-known economist P. Marsh explains the inevitability of integration of enterprises into network structures and the need to form efficient supply chains in a globalized economy (Marsh 2015).

Nobel Prize winner in economics Paul Krugman notes that if at the beginning of XX century this or that consumer product could be exported only once, today it can be exported many times. Goods made in one country can be assembled from components made in other countries, and they in turn can be assembled from subcomponents made in other countries. As a result, trade integrated into the global production of the final product may include several values added at all stages of production (Krugman 1995).

## 2 Material and Methods

Today the export market is dominated mainly by large Ukrainian companies, but many small and medium-sized companies have already realized their opportunity to gain a foothold in the world market. Thanks to their innovative strength, flexibility



and speed to respond to market trends and customer desires, they have great potential for the future. An enterprise always needs movement and change, this is what creates new products and extensions.

International trade has its peculiarities, forms and types. The process of unification of rules and regulations is ongoing, and adaptation takes place, which is inevitable for every enterprise that enters the world trading community.

For a number of reasons, export activity is more complex and multicomponent than domestic activity. Along with the advantages of entering the foreign market, there are additional risks, the stereotypes of «their» national ways of doing business disappear, the level of responsibility of personnel and competitiveness of the whole enterprise increases.

That is why it is important to make a thorough analysis of the enterprise's potential and financial capabilities, determine the export potential of products (services) and/or carefully analyze the priority export markets before deciding to start exporting.

Today, it is important for small and medium-sized enterprises to enter foreign markets, since the benefits of export activities far outweigh the potential risks.

On January 1, 2016, the Agreement on the Deep and Comprehensive Free Trade Area (DCFTA) between Ukraine and the European Union entered into force. The provisional application of the economic part of Title IV of the Association Agreement (which covers the Deep and Comprehensive Free Trade Area) began unilaterally on 23 April 2014, ie Ukraine had the right to use duty-free export quotas to the EU, in turn the EU countries supplied the products to Ukraine on general terms. It is only since January 2016 that the Agreement has entered into force bilaterally. The annexes to the Agreement fully describe the tariff regulation of trade between Ukraine and the EU. The adjustment system includes:

- 1) duties;
- 2) tariff quotas;
- 3) the entry price.

The duty is levied by the EU Customs when goods are brought to their market. For most agricultural products, the import duty from Ukraine to the EU has been abolished as of 1 January 2016 under the Association Agreement. For each product, there is a basic import duty rate and a transition period, which is understood as the length of time during which the duty rate will be directly proportionally reduced or abolished. The basic duty rate also applies to products whose export quota has been fully utilized and is further exported beyond quota volumes.

Tariff quota is a two-level customs tariff related to the quantity of goods at which a given quantity of goods can be exported/imported at a «preferential» or «zero» rate of duty for a certain period of time («duty rate within the quota»). Once the tariff quota is filled, you can continue to export/import the product without restriction, but pay a higher tariff rate («out-of-quota duty»).

The administration of EU tariff quotas is carried out exclusively by the European Union (corresponding to the directives of the European Commission) on two principles:

- 1) «first come - first served» - registration of the importation of goods within the tariff quota is subject to the availability of unused balance of the relevant quota at the time of supporting documents. In this case, the first is issued the goods, the accompanying documents which came first;
- 2) «import licensing» - importers of Ukrainian products submit a corresponding application for the right to import (issue a license) to the Directorate General of the European Commission «Agrarian Affairs and Rural Development». However, there are restrictions on the time during which an appropriate quota volume can be reserved.

The import license is used for the following products: beef, poultry and poultry semi-finished products (primary and secondary), pork (primary and secondary), eggs and albumins (basic and additional), butter and milk paste, dried milk, milk, cream, condensed milk and yoghurts, soft wheat, wheat flour and pellets, corn, corn flour and pellets, barley, barley flour and pellets.

According to the principle «first come - first served», the following products are exported: barley and flour, cereals, otherwise processed, processed dairy products, processed milk, processed cereal products, malt and wheat gluten, mushrooms and additional quota), processed sugar products, bran, waste and residues, food, cigars and cigarettes, processed starch, processed oil products, malt and starch products, grape and apple juice, lamb meat, processed tomatoes, sweet corn, another sugar, sugar syrup, oats, garlic, honey, ethanol.

The indexes for the production of export deliveries and import revenues are calculated using the Paasche (P) or Laspeyres (L) formulas. The choice of formulas depends on which periods you want to compare.

The price index calculated by the Paasche formula is based on current scales and allows you to compare only the current period with the baseline, which does not show an exact change in price from one period to another, because it reflects not only the change in price, but also the change in the structure of scales:

$$I_p^p = \frac{\sum p_1 q_1}{\sum p_0 q_1} \quad (1)$$

where:

$I_p^p$  – Paasche price index;

$p_1, p_0$  – price of goods respectively in the current and base periods;

$q_1$  – quantity of goods in the current period.

In the transition period, the more flexible one is the Laspeyres formula based on the weights of the base period

$$I_p^L = \frac{\sum p_1 q_0}{\sum p_0 q_0} \quad (2)$$

where:

$I_p^L$  – Laspeyres Price Index;  
 $p_1, p_0$  – price of goods respectively in current and base periods;  
 $q_0$  – quantity of goods in the base period (The Observatory of Economic Complexity).

The price index according to the Laspeyres formula is defined as the average harmonic weighted from the relative prices, where the weight is the value of the individual goods in the previous period. This index is not affected by any quantitative changes, because it characterizes only the price ratios for goods sold in the current period, compared to the previous one, in the constant volume of the base period.

A general idea of the factors affecting the development of imports and exports of the country can be obtained only through a comprehensive study of foreign trade indicators at both current and comparative prices, which allows to determine changes in the quantitative volumes of exports and imports of the country, prices for import and export goods and current trading conditions compared to the base period.

Indices of terms of trade «price» and «quantitative» characterize the extent to which a country wins (loses) by changing the price (quantity) of goods in foreign trade with a particular country (countries) for the relevant period of time.

The indicator of the terms of trade measures the relative dynamics of export prices over a certain period and is calculated for the analysis of foreign trade activity, which is measured by the ratio of average export earnings of goods and average costs of imports over a certain period of time. The «price» and «quantitative» indicators of trading conditions are calculated. They are calculated by the formulas:

$$T_p = \frac{I_{pe}}{I_{pi}}, \quad (3)$$

where:

$T_p$  – price trading conditions;

$I_{pe}$  – consolidated index of average export price for the current period compared to the base period;

$I_{pi}$  – composite index of the average import price for the current period compared to the base period.

$$T_Q = \frac{I_{Qe}}{I_{Qi}}, \quad (4)$$

where:

$T_Q$  – quantitative terms of trade;

$I_{Qe}$  – index of physical volume of export for the current period in comparison with the base period;

$I_{Qi}$  – index of the physical volume of imports for the current period compared to the base period.

The terms of trade index is one of the most important indicators used in the analysis of foreign trade development trends. It is quantified and it is possible to find out how favorable or unfavorable the trading conditions of the country were in the period under study compared to the base period (Deutsche Welle 2019).

### 3 Results and Discussion

The main indicators of the results of Ukraine's foreign economic activity in 2020 are: 1) fewer goods and services were sold abroad than in the previous year (by 7.8%); 2) the foreign trade balance remained negative; 3) the difference between exports and imports of goods and services (trade balance) amounted to 255.5 million dollars; 4) compared to 2019, the balance improved by almost \$ 3.4 billion (In Ukraine the negative balance..., 2021).

In particular, in 2020 the foreign trade turnover of goods and services compared to 2019 decreased by 10.2% (by 13.5 billion dollars) and amounted to 118.3 billion dollars. Exports of goods in 2020 decreased compared to 2019 by 1.7% (by 841.7 million dollars) and amounted to 49.2 billion dollars. The decrease in exports of goods took place in the following product groups: products of the metallurgical complex - by 1.2 billion dollars (by 11.9%), engineering products - by 121.8 million dollars (by 2.2%), light industry products - by 106.3 million dollars (by 9.0%), mineral products - by 465.5 million dollars (at 9.6%).

The largest share in Ukrainian exports belongs to: agricultural products and food industry (45.1%); products of the metallurgical complex (18.3%); mechanical engineering products (11.0%); mineral products (10.8%); products of the chemical industry (5.5%).

Exports of goods decreased to the following countries: Africa - by 18.6%; CIS - at 12.1%; Europe - by 10.4%. Exports of goods increased to the following countries: Asia - by 20.0%; Australia and Oceania - by 13.8%; America - by 5.5%.

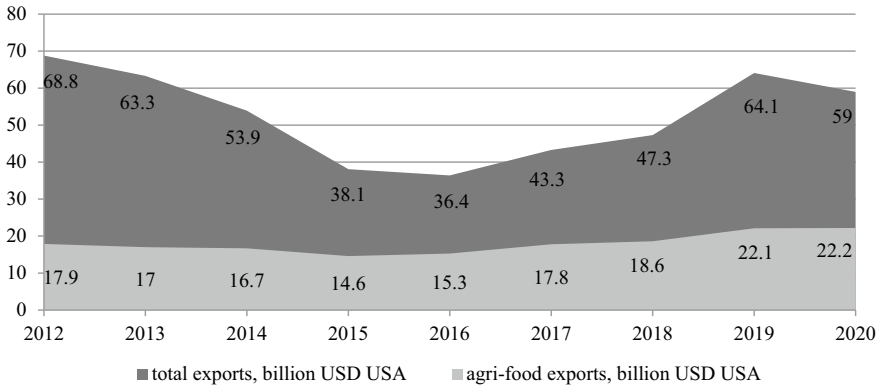
In Fig. 1 presents the dynamics of export from Ukraine for 2012–2020.

Over the last 5 years, the share of agricultural products in the structure of export earnings of Ukraine increased from 16.7% in 2014 to 22.2% in 2020. However, it is worth noting that the basis of agricultural exports is still raw materials exports, namely products of vegetable origin - wheat, corn, barley and soybeans. The share of these products in the structure is about 55%.

Sunflower oil accounts for the lion's share in agricultural exports, with sales of \$ 4.1 billion in 2018. Ukraine has been the world leader in the production and export of sunflower oil for several consecutive years. Other key positions are in cereals (corn, wheat, barley), as well as oilseeds (soybeans) and oilseed products (sunflower cake). These TOP-10 products account for 81% of all agri-food exports from Ukraine.

The main factors in the formation of export indicators for 2020 were:

1. Deployment of the COVID-19 pandemic in the world, which has caused significant changes in the lives of many countries (strengthened the role of



**Fig. 1** Dynamics of export from Ukraine in 2012–2020\* \*own calculations (based on Ukraine's foreign trade)

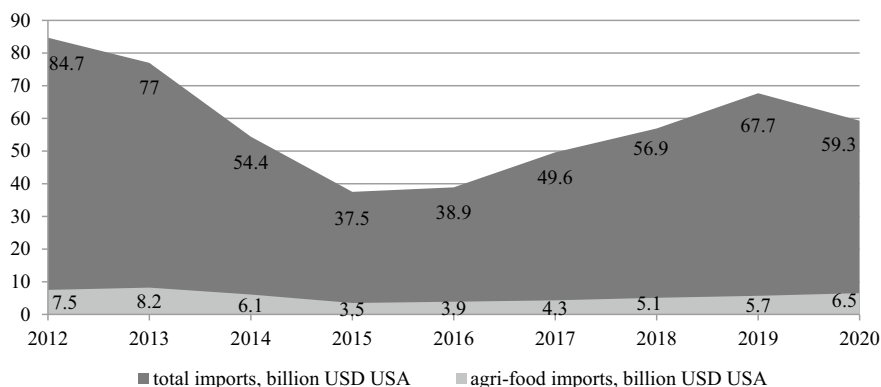
public administration in emergencies; introduced sanitary and epidemiological measures; restrictions on the movement of citizens and their employment; introduced distance forms of education and work).

2. Decreased business activity of industrial enterprises and reduction of production in all countries where measures are taken against the spread of COVID-19, which has led to a global decline in demand and, as a consequence, falling prices in world commodity markets.
3. Significant raw material orientation of Ukrainian exports and significant dependence of domestic enterprises on the foreign market, given the existing volatility of world markets, which determines the dependence of foreign exchange inflows on external price fluctuations.
4. Continuation of Russia's trade aggression (embargo and other restrictions on the supply of Ukrainian goods to the Russian market, Russia's ban on transit through its territory of goods of Ukrainian origin to third countries).
5. Continuation of Russia's military aggression against Ukraine.
6. Systemic problems of foreign economic activity development (VAT refund, customs and tax regulation).

The main market for the sale of Ukrainian agricultural products remains the Asian market, which slightly reduced its share in the structure of Ukrainian exports in 2020. The main partner countries from Asia this year were India, Turkey and China. In the second place - EU countries, where the main partners are Poland, Netherlands, Spain and Italy. The top three countries are closed by African countries, with Egypt, Tunisia and Morocco as their main partners.

The dynamics of imports to Ukraine for 2012–2020 is presented in Fig. 2.

Imports also declined after the 2012/13 crisis. However, since 2016, there has been an increase in Ukraine's import purchases of all products and agri-food products. In 2017, imports of agricultural products increased by 10.5% compared to 2016 and reached 4.3 billion dollars. USA. And by the end of 2020, imports of agri-food



**Fig. 2** Dynamics of imports to Ukraine in 2012–2020\* \*own calculations (based on Ukraine’s foreign trade)

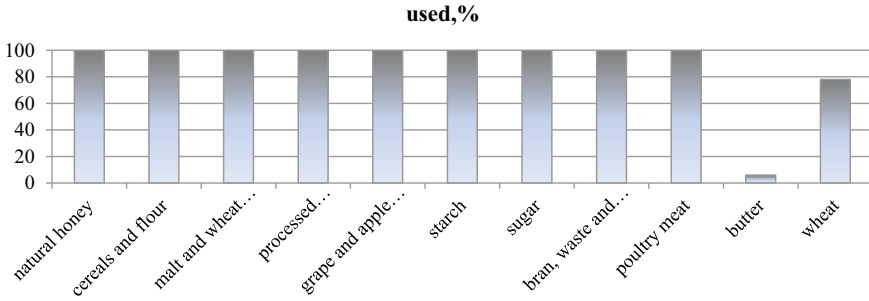
products rose to 6.5 billion US dollars. In general, imports of goods and services in 2020 decreased by 12.5% (by \$ 8.4 billion) compared to 2019 and amounted to \$ 59.3 billion.

Among the agricultural imports of Ukraine, the first position is occupied by frozen fish, tobacco raw materials took second place, and sunflower seeds - third. At the same time, in 2020 there was an increase in imports of goods by the following product groups: milk and dairy products, eggs, honey - by 138.9 million dollars (at 82.0%); edible fruits and nuts, citrus - by 121.7 million dollars (at 18.1%); tobacco - by 60.9 million dollars (at 12.3%); cocoa and cocoa products - by \$ 48.8 million (at 14.9%); residues and waste of the food industry - by 46.5 million dollars (at 20.1%); cereal products - by \$ 40.7 million (at 20.3%); meat and fish products - by 33.2 million dollars (at 26.1%); coffee, tea, spices - \$ 28.9 million (at 13.0%).

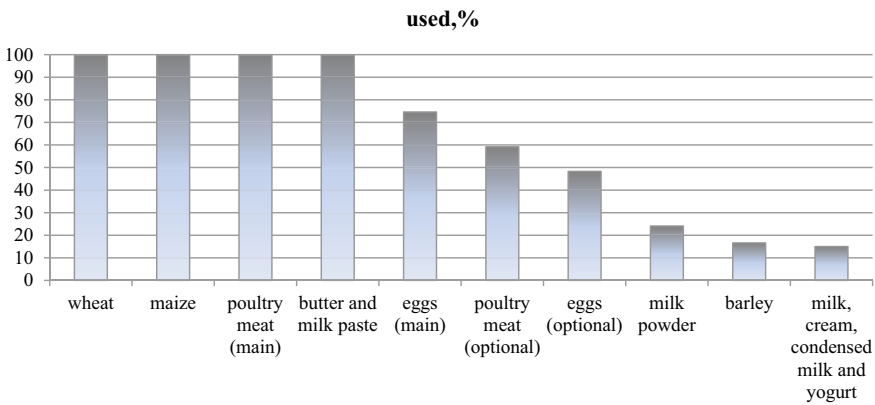
Entry price is a unified procedure, based on the determination of prices in the domestic market, on the basis of which all subsequent customs payments are calculated. All fruits, vegetables, natural juices and wines from all countries outside the EU are cleared under this scheme. According to this system, the duty consists of a general rate and an additional customs duty, the amount of which depends on the fact that the price of the goods is lower than the established EU figure. Ukrainian goods have a preference in the form of exemption from payment of the basic duty. Thus, only the difference in price is charged and no basic duty is charged.

As the data of Fig. 3 and Fig. 4, for 2020 Ukraine was closed by 100% 9 quotas, namely: 1) natural honey; 2) cereals and flour; 3) processed tomatoes; 4) grape and apple juices; 5) processed starch; 6) malt and wheat gluten; 7) sugar; 8) poultry meat; 9) maize.

Ukraine has completely “closed” 11 quotas for duty-free exports of agricultural products within the Free Trade Area (FTA) with the EU, while a year earlier there were 12, the EU said. According to it, in contrast to 2019, last year the supply of butter and wheat to the EU from Ukraine was lower than the duty-free quota, but the



**Fig. 3** Quotation closure on a first come, first served basis, 2020\* \*Directorate-General for Taxation and Customs Union of the European Commission (Ukrainian Agrarian Business Club 2021)



**Fig. 4** Import license quota closing status, 2020\* \*Directorate-General for Taxation and Customs Union of the European Commission (Ukrainian Agrarian Business Club 2021)

quota for duty-free export of eggs was fully used, while in 2019 - by 80%. In 2020, exports of Ukrainian butter fell by 38% compared to 2019, and in the EU became generally negligible (export revenue in 2020 amounted to \$ 0.4 million against \$ 7.2 million in 2019). Moreover, the import of European butter in 2020 in Ukraine is 1000 times higher than the export.

Under the Import License principle, the quotas for wheat, corn, poultry (main) and butter and milk pastas were closed 100%. The quota was closed by 74.6% and the additional quota by 48.3%, the poultry meat by 59.2% (additional). For other types of products - less than a quarter.

The geography of agricultural supply over the last decades has significantly expanded, and today Ukrainian food is, to one degree or another, represented on all continents of the planet. However, the main connoisseurs of products from Ukraine are the countries of Europe and Asia. The results of the analysis of foreign trade conditions are given in Table 1.

**Table 1** Indices of physical volume, average prices and terms of trade in foreign trade of Ukraine in 2017–2020, % compared to the previous year\*

| Code and name of goods according to UCGFEA             | Physical volume index (Laspeyres) |       |        |       | Price index (Paashe) |       |        |       | Trade conditions index |       |       |       |
|--|-----------------------------------|-------|--------|-------|----------------------|-------|--------|-------|------------------------|-------|-------|-------|
|  | Export                            |       | Import |       | Export               |       | Import |       | Quantitative           |       | Price |       |
|  | 2017                              | 2020  | 2017   | 2020  | 2017                 | 2020  | 2017   | 2020  | 2017                   | 2020  | 2017  | 2020  |
| <b>Total</b>   | 102.7                             | 94.0  | 110.9  | 89.4  | 115.9                | 104.6 | 114.0  | 99.6  | 92.6                   | 105.2 | 101.7 | 105.0 |
| Including  |                                   |       |        |       |                      |       |        |       |                        |       |       |       |
| 01 live animals  | 138.4                             | 76.6  | 94.8   | 99.4  | 106.9                | 107.6 | 104.5  | 106.2 | 146.0                  | 77.0  | 102.3 | 101.3 |
| 02 meat and edible offal                               | 115.9                             | 96.7  | 132.0  | 100.2 | 118.2                | 94.7  | 105.1  | 103.8 | 87.8                   | 96.5  | 112.5 | 91.2  |
| 04 milk and milk products, poultry eggs; natural honey | 128.9                             | 89.4  | 133.4  | 192.6 | 116.1                | 105.1 | 107.0  | 94.5  | 96.6                   | 46.4  | 108.5 | 111.2 |
| 05 other products of animal origin                     | 96.8                              | 117.8 | 103.2  | 98.6  | 131.6                | 89.1  | 116.6  | 106.3 | 93.8                   | 119.5 | 112.9 | 83.8  |
| 07 vegetables  | 168.2                             | 80.5  | 96.0   | 108.5 | 91.7                 | 113.1 | 97.0   | 113.9 | 175.2                  | 74.2  | 94.5  | 99.3  |
| 10 cereals   | 104.8                             | 90.3  | 118.8  | 88.2  | 102.1                | 108.3 | 100.0  | 112.1 | 88.2                   | 102.4 | 102.1 | 96.6  |
| 11 products of the flour and cereals industry          | 122.7                             | 73.1  | 161.8  | 82.5  | 107.0                | 104.6 | 90.1   | 121.5 | 75.8                   | 88.7  | 118.8 | 86.1  |
| 12 oil seeds and fruits                                | 126.7                             | 64.7  | 103.6  | 92.3  | 105.9                | 111.1 | 108.2  | 104.9 | 122.3                  | 70.1  | 97.9  | 105.9 |
| 17 sugar and sugar confectionery                       | 120.2                             | 96.9  | 83.8   | 100.0 | 98.7                 | 101.5 | 101.1  | 105.1 | 143.4                  | 96.9  | 97.6  | 96.6  |
| 19 preparations of grains                              | 128.9                             | 103.5 | 129.3  | 114.5 | 108.2                | 112.3 | 103.1  | 105.1 | 99.7                   | 90.4  | 104.9 | 106.9 |
| 21 other mixed foodstuffs                              | 116.8                             | 105.2 | 99.7   | 104.1 | 103.4                | 106.4 | 111.1  | 106.0 | 117.1                  | 101.1 | 93.1  | 100.4 |
| 24 tobacco and industrial tobacco substitutes          | 111.3                             | 101.0 | 88.3   | 104.5 | 99.3                 | 99.9  | 106.0  | 107.5 | 126.0                  | 96.7  | 93.7  | 92.9  |

\* own calculations (based on Ukraine's foreign trade for 2017–2020)

The data in Table 1 and Table 2 show that during the period 2017–2020 there were significant changes in both quantitative and cost indicators of foreign trade in Ukrainian goods. In particular, exports of live animals, milk and dairy products, oil seeds and fruits decreased significantly. However, export prices grew at a slower pace.



**Table 2** Indices of physical volume, average prices and terms of trade in Ukraine's foreign trade in goods in 2017–2020, % to the previous year\*

| Name of goods according to UCG FEA | Quantitative index of trading conditions |              | Price index of trading conditions |              | Change, ±    |             |
|------------------------------------|--|--------------|-----------------------------------|--------------|--------------|-------------|
|                                    | 2017                                     | 2020         | 2017                              | 2020         | Quantitative | Price       |
| Total                              | <b>92.6</b>                              | <b>105.2</b> | <b>101.7</b>                      | <b>105.0</b> | <b>+12.6</b> | <b>+3.3</b> |
| Including                          |  |              |                                   |              |              |             |
| Cereals                            | 88.2                                     | 102.4        | 102.1                             | 96.6         | +14.2        | −5.5        |
| Oil seeds and fruits               | 122.3                                    | 70.1         | 97.9                              | 105.9        | −52.2        | + 8.0       |
| Animal or plant fats and oils      | 116.1                                    | 113.0        | 92.3                              | 97.3         | −3.1         | +5.0        |

\* own calculations (based on Ukraine's foreign trade for 2017 [2020](#))

To analyze the terms of trade, let us define the goods that occupy the largest share in the structure of exports and imports of Ukraine for 2017–2020. As shown in [Table 2](#), in Ukraine as a whole, we have an increase of 12.6% of the quantitative index and of 3.3% of the price index, which positively characterizes the change in the conditions of foreign trade of the country.

In particular, the negative results of foreign economic activity of Ukrainian FEA subjects are:

- 1) a significant decrease in the quantitative index of trade in seeds and fruits of oil plants; fats and oils of animal or vegetable origin; mineral fuels, oil and distillation products;
- 2) a significant decrease in the price index of ore, slag and ash trade; ferrous metals; by means of land transport.

In addition, the positive results of foreign trade transactions are:

- 1) a significant increase in the quantitative index of ore, slag and ash trade; ferrous metals; by means of land transport;
- 2) increase in the price index of trade in fats and oils of animal or vegetable origin; electric machines; pharmaceutical products.

Quantitative and price indices of trade conditions characterize the extent to which a country wins or loses by changing the quantity and price of goods in foreign trade with different countries over a period of time. Thus, the dynamics of the quantitative index for 2017–2020 indicates an improvement in the physical volume of goods.

On January 1, 2018, Ukraine has implemented the provisions of the Regional Convention on Pan-Euro-Mediterranean Preferential Rules of Origin (Pan-Euro-Med). This Convention is a tool developed by the European Union to cooperate with its trading partners, as well as with these countries.

Participation in the Pan-Euro-Med Convention will allow Ukrainian producers to buy raw materials and components in the countries of the European Free Trade Association or in the Mediterranean countries, and to export finished products to the

EU, maintaining the status of preferential origin - to import goods at a reduced or zero rate.

Ukraine's participation in the Convention will allow us to expand the presence of our goods on the markets of third countries with which free trade agreements have been concluded, namely the EU, EFTA, Montenegro, Moldova and Macedonia. In addition, you know that you are preparing to sign a Free Trade Agreement with Israel, which is also a party to the Convention (EU Free Trade Area (DCFTA) 2020).

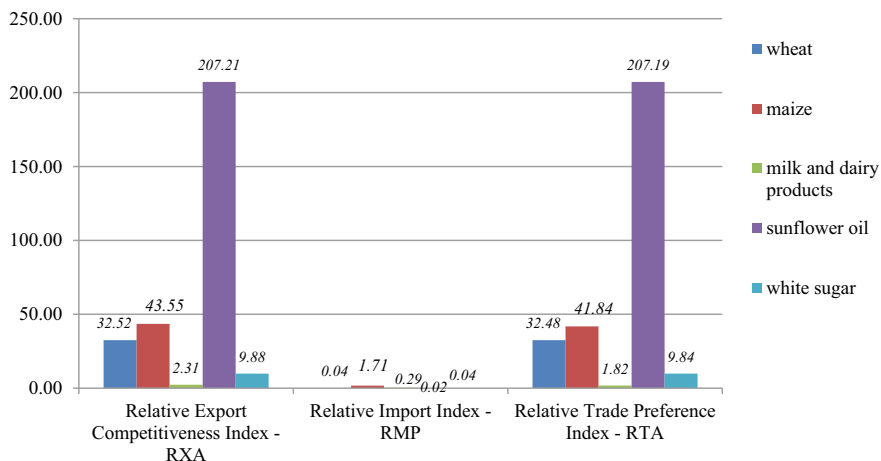
In order to assess the competitiveness of domestic agriculture, we calculated indices of relative trade preferences for some goods that are or were in the past the main export specialization of Ukraine (Fig. 5).

An analysis of the RTA values obtained makes some important conclusions. First, the positive fact is that in 2019, all the goods selected for research were competitive in the foreign market, which confirms the positive value of the RTA indices for these goods.

Second, judging from the RTA value, the most competitive in the world market is sunflower oil (the RTA value in 2019 was 207).

Third, wheat and corn were competitive in all years. Although grain accounts for the largest share of Ukrainian agricultural exports, the absolute value of RTA is rather low. This is due to the fact that along with exports to Ukraine during the period under review, there has also been a constant import of certain types of cereals, including wheat. In addition, cereals are characterized by a rather large share in world exports.

Fourth, the results of the research indicate a loss of competitiveness in the domestic sugar industry. If in 1994–1997 there was a significant export of sugar from Ukraine, in 2005–2007 the situation was reversed, and there is a tendency to a permanent decrease in competitiveness (in 2019 the RTA for sugar was equal to 9.84).



**Fig. 5** Calculation of indices of relative export competitiveness and relative dependence on imports of certain types of goods of Ukraine for 2019\* \*own calculations (based on The Observatory of Economic Complexity 2020)

Fifth, the competitiveness of livestock products is much lower than that of crop production. There is a clear tendency for its significant fluctuations in different years, but the positive is that in 2019 milk and dairy products were competitive in the foreign market (Vlasyuk 2017).

In addition, significant fluctuations in exports over the years cannot be considered positive. This indicates that Ukraine does not have a stable «niche» in the world market, and the competitiveness of its products, as already noted, is predominantly pricing in nature and largely dependent on the external markets.

It is necessary to remember, the main task of agriculture is to produce food at a level that will ensure food security, meeting growing demand and adhering to the principles of sustainable development. Within this sector, this means that basic resources (such as soil, nutrients and water) cannot be used haphazardly. Therefore, decisions aimed at the sustainable development of agricultural activities should focus on improving resource efficiency (Sustainable development 2021).

Exports of industrial intermediate goods used for further processing indicate a significant potential for integration of Ukrainian industry into international value chains (Kushnirenko et al. 2018.)

## 4 Conclusions

Summing up the above, it can be argued that the development of foreign markets, expansion of export orientation of production, which should become one of the main factors of economic growth of most industries, are extremely important for the economic complex of Ukraine at present. This is especially true because much of the production is not in demand in the domestic market due to low purchasing power of the population, and this circumstance is a major constraint for the development of Ukrainian agriculture.

Always the one who has the processing industry wins. Without the processing industry, the countries of the «golden billion» would not be such. The pace of development of manufacturing should exceed the rate of GDP growth in the country. We need to have at least 5% growth in 20 years to make up. Therefore, in the coming years, the processing industry should develop at a rate not lower than 7–8% annually. All successful countries have passed through this stage. This is when the pace of development of manufacturing and exports was higher than the rate of GDP growth, and the continuous duration of growth was tens of years.

What should the state invest to help itself? The first is investment in education and training of specialists. The second is the financing of science and research. Third - infrastructure investments.

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# **Business Management, HR, Business Success and the Role of Technology**

# Factors Influencing Mobile Payment Adoption and Its Role in Promoting Financial Inclusion: An Integrated Reflective Model with Theory of Planned Behavior



Mousa Ajouz , Faeyz Abuamria , and Jehad Hammad 

**Abstract** This paper investigates the factors influencing mobile payment adoption and its contribution to financial inclusion, which seems sparse and lacking in the literature. Over 75% of Palestinian adults are excluded from financial services by banks and other non-bank financial institutions, so mobile payment is expected to bridge this gap. A quantitative approach was employed using 307 questionnaires designed based on the theory of planned behaviour and reflective model for measuring financial inclusion. In data analysis, a structural equation modelling in AMOS was applied to data elicited. It was found that all direct paths within the model were supported, except for the paths between subjective norm and mobile payment intention. The proposed model supports the mediation role of attitude, subjective norm, and perceived behavioural control between beliefs and mobile payment intention. Additionally, with successive increases in mobile payment usage, financial inclusion moved further to increase. Precisely, the growth of mobile payment usage by 1% can improve financial inclusion by 0.60%. Taken together, the structural model can explain 36% of covariance in financial inclusion for mobile payment. The originality of this research lies in empirically investigating the potential role of mobile payment in fostering financial inclusion in Palestine, which would contribute to the efforts that intended to overcome the financial exclusion faced by the majority of Palestinian, which benefits the researchers, public, business community, and policymakers.

**Keywords** Mobile payment · Financial inclusion · Theory of planned behavior

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M. Ajouz (✉) · F. Abuamria  
Palestine Ahliya University, Bethlehem 1041, Palestine  
e-mail: [m.ajouz@paluniv.edu.ps](mailto:m.ajouz@paluniv.edu.ps)

F. Abuamria  
e-mail: [f.abuamria@paluniv.edu.ps](mailto:f.abuamria@paluniv.edu.ps)

J. Hammad  
Al-Quds Open University, Bethlehem 489, Palestine  
e-mail: [jhammad@qou.edu](mailto:jhammad@qou.edu)

# 1 Introduction

Innovations in Information and Communications Technology (ICT) have revolutionized the delivery of financial services and products. One of the most promising innovations that have revolutionized the economy and have, in particular, penetrated the lifestyles of consumers is mobile payment, especially in developing countries. Mobile payment is a service that facilitates the storage and transfer of value digitally through phones and smartphones. This has increasingly become available in several countries, which could transfer the economics that we knew once and forever (Ajouz 2019; Myeni et al. 2020). Smartphones are rapidly becoming a key instrument in various economic sectors, including payment, financing, insurance, banking and E-commerce (Cobla and Osei-Assibey 2018; Donovan 2012; Abdo Alaghbari et al. 2021; Ali et al. 2021).

The features of a smartphone in general and mobile payments, in particular, have made it an innovative tool in addressing traditional dilemmas facing the financial sector, such as financial exclusion (Ajouz 2019). Financial exclusion is a significant financial problem in developing countries, and many strategic plans have been addressing the provision of financial services at affordable costs and means (Kim et al. 2018). For instance, in 2018 Palestine Monetary Authority has launched the national financial inclusion strategy (NFIS) and its action plan to fight the financial exclusion, which is estimated at 75% of the population (Demirguc-Kunt et al. 2018; PMA 2018).

## 1.1 *The Research Problem and Objectives*

Investigating financial exclusion is a continuing concern within developing countries. According to Apiors and Suzuki (2018) and Porter et al. (2015), being financially excluded somehow increases poverty, unemployment and undermines economic activity. Financially, including underserved and unserved through mobile payment is likely to increase payments volumes at a domestic level and stimulate the participation in the formal economy, with the benefits of smoothing incomes, defending against vulnerabilities, facilitating daily living, and advancing the Sustainable Development Goals (Apiors and Suzuki 2018). As a result, financially excluded people are allowed more opportunities to participate in the formal financial system (Lenka and Barik 2018; Ssonko 2010).

The remarkable growth of smartphone users in Palestine offers a chance that can be harnessed to expand access to financial services to the underserved and unserved segments of the population who actually own smartphones (around 86% of the population). Despite the fact that mobile payment in Palestine has been introduced since 2011 and the percentage of mobile phone users is around 89% of the total population, the actual usage of mobile payment is still in its minimum limits and fluctuated between 1 and 2% in the past nine years (Demirguc-Kunt et al. 2018). In light of

such circumstances, financial institutions and mobile payment providers are focusing their efforts on increasing the number of mobile payment users. Yet, very little is known about mobile payment in Palestine, and it is not clear what factors influence mobile payment adoption among potential users.

There is already substantial literature on the factors that influence mobile payment adoption, especially its potential impact on financial inclusion. As we explain, there is a high rate of smartphone users in Palestine but a low rate of mobile payment usage and financial inclusion. Therefore, there is a gap in knowledge that new research needs to fill. Therefore, this research aims to:

1. Determine the factors that influence mobile payment adoption in Palestine.
2. Investigating the potential role of mobile payment in fostering financial inclusion in Palestine empirically.

The remaining of the research is arranged as follows: Sect. 2 presents a review of the literature and proposes the conceptual framework, while Sect. 3 highlights the methodology adopted, and Sect. 4 presents and discusses the findings. Finally, Sect. 5 concludes the article.

## 2 Literature Review

Previous literature has been reviewed based on Bibliometrics analysis using the R programming language. The analysis was carried out based on 51 papers retrieved from Scopus and ScienceDirect. The search subject was limited to social sciences, business, management, accounting, economics, econometrics, and finance. Only articles, conference papers, books and book chapters have been included. Previous research has indicated that the effects of mobile payment on financial inclusion started to emerge in 2009 by lecture notes written by Chavan et al. (2009). However, it took quite some time until research appeared in social sciences and business research by Maurer (2012). Since then, the research regarding financial inclusion through mobile payment has been reasonably extensive, and it reached its peak in 2018 by publishing approximately ten papers.

The present results are significant in at least one paramount respect linking mobile payment effects on financial inclusion and developing countries. According to the number of research documents, the dominant countries in this area are the USA (12), India (11), Singapore (8), UK (6), China (5), Indonesia (4), and Kenya (3). This finding confirms the association between developing countries and the research trend in mobile payment and financial inclusions. This comes from the fact that the financial exclusions in these countries are relatively high; as stated by Demircuc-Kunt et al. (2018), nearly 30% of all unbanked adults live in China, India and Indonesia, respectively. These results provide further support by the top keywords mentioned by previous research, where electronic money, financial inclusions and the developing world were at the top of the list. A possible explanation for these results may be



the high rate of financial exclusion in these countries. Therefore, previous research intends to improve financial inclusion rates.

The primary objective of mobile payment is the pursuit of making financial services available and accessible at affordable costs to all individuals and businesses. In fact, it is expected to be a critical driving force in reducing financial exclusion. The literature is replete with studies of mobile phones' impacts on financial inclusion. Theoretical studies focused on nature to visualize the mobile payment and its contribution to promoting financial inclusion (e.g. Ahmad et al. 2020; Ajouz 2019; Donovan 2012; Kim et al. 2018; Ndung'u 2018). Moreover, other empirical studies focused on expanding financial inclusion through mobile money or mobile banking (e.g., Behl and Pal 2016; Deb and Agrawal 2017; Siddik et al. 2014). The problem with their approach is that the construct "financial inclusion" was neither presented nor measured in their proposed model. They ended up empirically investigating the factors that influence the usage of mobile payment.

On the one hand, there is considerable empirical evidence that increased mobile payment positively affects financial inclusion in diverse geographical areas. These studies include econometric analysis using various approaches such as cluster analysis (Della Peruta 2015), panel vector error correction model (Pradhan and Sahoo 2020), panel structural vector autoregressive model (Chinoda and Kwenda 2019), logistic regression (Son et al. 2020), propensity-score matching and propensity-score weighted regression (Apiors and Suzuki 2018), simple probit analysis on a binary variable (Van Hove and Dubus 2019), propensity score matching (Myeni et al. 2020), and matching methods (N'dri and Kakinaka 2020), while Lenka and Barik (2018) used three different models, namely the fixed effect, random effect, and panel correction standard errors models. Together, these studies outline the potential impact of mobile payment, especially its contribution to financial inclusion.

On the other hand, empirical studies include primary data such as Bongomin et al. (2018), who tested the impacts of mobile payment usage on financial inclusion based on the moderation effect of social networks. Their seminal article measures financial inclusion based on four dimensions: access, usage, quality, and welfare of financial services. However, this research failed to justify the wisdom behind choosing and combining these four dimensions (access, usage, quality, and welfare) to present financial inclusion. In further works by Bongomin and Munene (2019) and Bongomin and Ntayi (2019, 2020), they investigated the relationship between mobile money adoption and financial inclusion by mediating cultural norms, trust, and digital consumer protection. They ignored the four dimensions previously used by Bongomin et al. (2018).

Researchers have not treated financial inclusion in much detail, where the items used to measure financial inclusion measured mobile payment services rather than measuring financial inclusion. Therefore, this research is trying to fill the empirical gap by measuring financial inclusion based on three dimensions, namely accessibility, availability and usage of financial services as suggested by Sarma (2008, 2015). However, despite the contribution of Sarma (2008, 2015) in developing the financial inclusion measurement dimensions, he developed it to index countries based on their level of financial inclusion. Sarma (2008, 2015) failed to provide a suitable scale for

examining the perception of the public about accessibility, availability, and usage of financial services.

Although research regarding financial inclusion through mobile payment in developing countries has been reasonably extensive, the literature has not been equally comprehensive when addressing financial inclusion in the context of Palestine. Consequently, the current research aims to bridge the population gap by surveying Palestine. It is worth mentioning that Palestine is one country that does not have either a central bank or national currency (Sabri et al. 2015). Despite this, Palestine has successfully managed to establish its financial sector within two decades, positioned as a leading financial inclusion country in the MENA region as stated in the Alliance for Financial Inclusion report (quote from PMA 2018). Additionally, electronic payment generally and mobile payment more specifically could help Palestinians overcome the absence of national currency.

## ***2.1 Theoretical Model of Mobile Payment and Financial Inclusion***

### **Introduction to the Theory of Planned Behavior**

Amongst the theories that have been established, possible antecedents of customer intention are well known as the Theory of Planned Behavior (TPB) proposed by Ajzen (1985, 1991) and Fishbein and Ajzen (1975). TPB assumed that three immediate antecedents and strong influencers of any behavioural intention are personal attitudes, social norms towards the behaviour and perceived behavioural control (Peredaryenko 2016).

TPB suggest the order in which the most critical cognitive concepts of a customer decision-making process appear and are related to each other. This is why TPB has practical importance in behaviour research (Peredaryenko 2016). Therefore, TPB empowers the practitioners to measure what stimuli should be modified or emphasized to attract a particular consumer response (Bray 2008).

TRA suggested that intentions related beliefs can determine behavioural intention, attitude, subjective norm, and perceived behavioural control (Peredaryenko 2016). Meanwhile, TPB has been used in a variety of research, and it is successfully able to predict and explain several types of behaviour. However, critics argued that both TPB and TRA had not specified any determinants of behavioural attitudes, subjective norm, and, to some extent, behavioural control (Siddik et al. 2014).

### ***Mobile Payment Intentions - Related Beliefs***

Beliefs can be defined as the underlying psychological determinant that determines behaviours (Ajzen 1991; Tan et al. 2019). It encompasses indirect or belief-based measures of attitudes, subjective norm, and perceived behavioural control (Peredaryenko 2016). Fishbein and Ajzen (1975) holds the view that belief-based measures of these constructs should be well connected with their direct measurements since they measure the same unobservable phenomena. In other words, as

stated in the theory of planned behaviour, the behaviour-related beliefs of an individual directly affect the formation of one's perceived behavioural control, subjective norm and attitude towards the behaviour (Peredaryenko 2016).

What we know about these links is primarily based on empirical evidence demonstrated by Hrubec et al. (2001) and McCarthy et al. (2003), where they investigate the relationships between behaviour-related beliefs and the three mentioned constructs. The results of their investigation showed a strong positive correlation between belief-based measures and perceived behavioural control, subjective norm, and attitude as Ajzen (1991) and Fishbein and Ajzen (1975) have conceptualized it. Depending on the above theoretical and empirical evidence, it could conceivably be hypothesized that:

- H<sub>1</sub> Beliefs of mobile payment intention have a positive relationship with attitudes.
- H<sub>2</sub> Beliefs of mobile payment intention have a positive relationship with the subjective norm.
- H<sub>3</sub> Beliefs of mobile payment intention have a positive relationship with perceived behavioural control.

#### *Attitude*

As stated by Ajzen (1991 p. 188), the term attitude refers to “the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question”. A large and growing body of literature has investigated the role of attitude in predicting behavioural intention to adopt mobile payment, which indicated a significant positive impact (e.g., Cao et al. 2018; Dlodlo 2014; Giovanis et al. 2020; Lu et al. 2017; Tan et al. 2019; Verma et al. 2020; Wamuyu 2014; Zhou 2013). In addition, recent evidence suggests that attitude mediates the relationship between beliefs and intention to adopt mobile payment (Tan et al. 2019). It is therefore vital to investigate the mediation role of attitude between beliefs and mobile payment intention. Therefore, it is possible to hypothesize that:

- H<sub>4</sub> Attitude mediates the relationship between beliefs and mobile payment intention.
- H<sub>5</sub> Attitude has a positive relationship with mobile payment intention.

#### *Subjective Norm*

The term subjective norm has come to refer to “perceived social pressure to perform or not to perform a behavior” (Ajzen 1991 p. 188). In this manner, subjective norm represents the importance of the social influence of parents, friends, and colleagues on potential users' intention to adopt mobile payment (Minton et al. 2018; Verma et al. 2020). Palestinians' potential users may rely on other groups' and/or peers' opinions before deciding to adopt mobile payment. Traditionally, it has been argued that subjective norm has a significant positive impact on intention to adopt mobile payment (see, e.g. Del Bosque and Crespo 2011; Giovanis et al. 2020; Kim et al. 2009; Pedersen 2005; Schierz et al. 2010; Verma et al. 2020). In addition, previous studies have reported the mediation role of subjective norm between beliefs and intention to adopt mobile payment (Tan et al. 2019). Consequently, it could conceivably be assumed that:

H<sub>6</sub> Subjective norm mediates the relationship between beliefs and mobile payment intention.

H<sub>7</sub> Subjective norm has a positive relationship with mobile payment intention.

#### *Perceived Behavioral Control*

In the literature, Ajzen (1991) defined perceived behavioural control as “assurance they can execute given activities under designated situational demands” (Bandura 2007 p. 646). In other words, perceived behavioural control in the context of mobile payment is conceptualized as the individual’s ability to control performing or not performing mobile payment transactions (Verma et al. 2020). Several authors have explored the positive impact of perceived behavioural control on intention to adopt mobile payment (see, e.g. Dorfleitner et al. 2017; Giovanis et al. 2020; Lerner 2013; Peredaryenko 2019; Verma et al. 2020). Also, Tan et al. (2019) investigated the mediation impact of perceived behavioural control between beliefs and intention to adopt mobile payment. It can therefore be hypothesized that:

H<sub>8</sub> Perceived behavioural control mediates the relationship between beliefs and mobile payment intention.

H<sub>9</sub> Perceived behavioural control has a positive relationship with mobile payment intention.

#### *Mobile Payments and Financial Inclusion*

Financial inclusion is a relatively growing topic that received increased attention from the financial and regulatory institutions at the international or local levels. According to PMA (2018), financial inclusion refers to “enhancing access to, and use of, financial products and services by all segments of the society via formal channels, while meeting their needs in a timely and affordable manner, protecting their rights and promoting their financial knowledge to enable them to make well informed financial decisions”.

Numerous studies have attempted to explain the contributing factors in promoting financial inclusion (such as Ahmad et al. 2020; Donovan 2012; Kim et al. 2018; Ndung’u 2018), as well as other empirical studies (such as Behl and Pal 2016; Bongomin et al. 2018; Bongomin and Munene 2019; Bongomin and Ntayi 2019, 2020; Deb and Agrawal 2017; Siddik et al. 2014). Thus, there is no doubt that mobile payment usage has a growing impact on financial inclusion but needs to be appropriately measured.

In this research, the financial inclusion was expressed based on a reflective model according to country-specific factors associated with the level of financial inclusion, which contains three dimensions, namely accessibility, availability, and usage of financial services as suggested by Sarma (2008, 2015). Several empirical and theoretical research has fairly investigated the relationship between mobile payment adoption and financial inclusion. Therefore, it could conceivably be hypothesized that:

H<sub>10</sub> Mobile payment intention has a positive relationship with financial inclusion.

### 3 Methodology

#### 3.1 Measurement

To achieve content validity, the measurement items were developed based on an intensive literature review of the planned behaviour theory. The items to measure potential users' intention to adopt mobile payment were adapted from Bian and Moutinho (2011), Cook and Fairweather (2007) and Im and Ha (2011); attitude toward using mobile payment adopted from Taylor and Todd (1995); subjective norm toward using mobile payment adopted from Francis et al. (2004), Peredaryenko (2016) and Tan (2013); perceived behavioural control adopted from Peredaryenko (2016) and Tan (2013); and belief about using mobile payment adopted from Peredaryenko (2016).

In addition, to measure financial inclusion, a reflective model was developed based on Sarma (2008, 2015) research. The measurement items that are peculiar to financial inclusion were recently developed to suit the research purpose. Thus, to ensure that the items measured their designated constructs and that they have high reliability, an exploratory factor analysis (EFA) with Varimax rotation technique was carried out, where it was found that the newly developed items belong perfectly to three constructs which are accessibility, availability, and usage of financial services (See items in Appendix 1).

Finally, to make the questionnaire accessible to the respondents, the research instrument was translated back-to-back from English into the Arabic language. Thus, before proceeding with the main survey, a pilot test was conducted to establish the validity and reliability of the questionnaire. The result of the pilot test supports the completion of data collection.

#### 3.2 Sample and Data Collection

The primary target respondents have been identified as the potential users of mobile payment in the West Bank and Gaza Strip, Palestine, who are economically active residents. The data collection process took place between the 28th of November 2019 to 16th of July 2020. However, given that no sampling frame could be used for this research, Bentler and Chou (1987) proposed a rule of thumb, which allows as few as 5 cases per parameter estimate to be used. Accordingly, 37 parameters were used, and therefore, the minimum sample size recommended is 185. In addition, based on the proposed model that contains six constructs, the minimum recommended sample size would be 150, according to Hair et al. (2019).

The data was collected using self-administered and electronic questionnaire techniques. Thus, around 650 questionnaires were distributed based on convenience random sampling, and 307 valid responses were received. The overall response rate was about 47%, which is reasonable for research of this scale. The demographic profile of the respondents shows that the majority, 59.3% of the respondents,

have previously used electronic payment mechanisms in their transactions. 52.1% of respondents were males, while 47.9% were females. Notably, 79.2% of respondents are in the age range of 18 and 39 years old. A large portion of respondents (83.1%) belongs to lower-class income groups who earn less than USD 1,500 per month, while the rest earn monthly income higher than that. Respondents with a diploma and bachelor’s degrees accounted for 77.5% of the data, while 18.9% have doctorate and master’s degrees. The demographic profile also showed that respondents belong to several occupation categories, including students (46.3%), the public sector (21.5%), the private sector (19.9%), self-employed (8.8%), and 3.6% are still looking for job opportunities.

## 4 Results and Discussions

### 4.1 Measurement Model

To evaluate the fit of the hypothesized model, confirmatory factor analysis was carried out on the 307 sampled data collected from potential mobile payment users in Palestine through AMOS version 22. As mentioned earlier, the structural model proposed contains the first-order construct to measure the acceptance of mobile payment (which are attitudes, subjective norm, perceived behavioural control, and beliefs), and a second order constructs to measure the financial inclusion (which are accessibility, availability, and usage). Therefore, to evaluate the measurement model, the first-order construct needs to be asserted separately from the second-order construct, according to the recommendation of Mueller and Hancock (2008) in the best practices of structured equation modelling. The measurement model was assessed using confirmatory factor analysis where different indices were asserted; these included comparative fit index (CFI), likelihood ratio (CMIN/df), and Root Mean Square Error of Approximation (RMSEA).

Table 1 shows the suggested cut-off values and the results obtained from the data analysis of the first order and second-order models. It can be seen from the data in Table 1 that the values of CFI were 0.941 and 0.961, which achieved the cut-off values. The results also showed that relative  $\chi^2$ (CMIN/df) values were 2.422 and 2.586, which fulfil Kline’s (1998) recommendation as they are below 3. The values of RMSEA also support the model’s fit, where they were 0.068 and 0.072, which

**Table 1** Results of the confirmatory factor analysis

| Model                    | CFI   | $\chi^2$ (CMIN/df) | RMSEA  |
|--------------------------|-------|--------------------|--------|
| Cut-off point            | >0.90 | <3                 | <0.080 |
| CFA (first order model)  | 0.941 | 2.422              | 0.068  |
| CFA (second order model) | 0.961 | 2.586              | 0.072  |

fulfil Mueller and Hancock's (2008) criteria as they are below 0.08. The results of CFI, CMIN/df and RMSEA indicate the fit of data for the proposed model.

In addition, internal consistency reliability was evaluated by conducting composite reliability tests (Gefen et al. 2000). As shown in Appendix 1, all the constructs have composite reliability values between 0.833 and 0.926, which are acceptable (Straub 1989). On the other hand, the convergent validity was established by carrying out average variance extracted (AVE), where the value of AVE must be higher than 0.5, as advised by Hair et al. (2016). As presented in Appendix 1, the AVE values of all constructs were between 0.501 and 0.808, which support convergent validity in this research. The results from the measurement model indicate a good model fit.

### 4.2 Structural Model

Figure 1 presents the results of the AMOS structural model. The goodness of the structural model is also presented, where the CFI was 0.912,  $\chi^2$  (CMIN/df) was 2.217, and RMSEA was 0.063. These results represent a good model fit, according to Kline (1998) and Mueller and Hancock (2008). Therefore, the hypothesized constructs can be used to test the structural model.

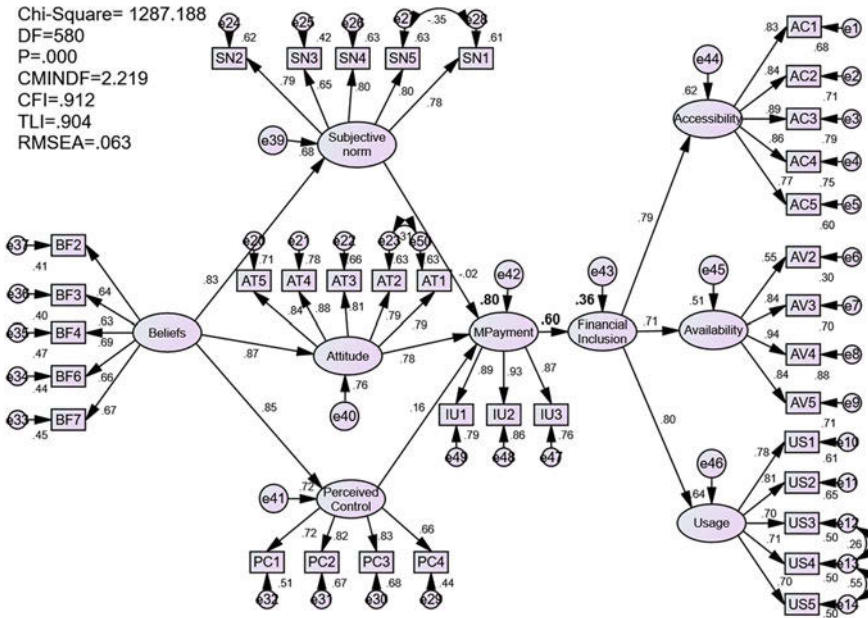


Fig. 1 Structural model results



Remarkably, the proposed model explained 36% of the variation in financial inclusion and validated the hypothesis (H<sub>10</sub>) that mobile payment intention has a positive effect on financial inclusion. In addition, the proposed model explains 80% of behavioural intention to adopt mobile payment and confirms hypotheses. As shown in Tables 2 and 3, all models' paths were supported at the 0.05 level except for H<sub>7</sub>, where it was found not supported by the collected data. Furthermore, the proposed model supports the mediation role of attitude, subjective norm, and perceived behavioural control between beliefs and mobile payment intention.

In details, the potential users' beliefs of mobile payment intention as presented in H<sub>1</sub>, H<sub>2</sub> and H<sub>3</sub>, had significant positive effects on attitude ( $\beta = 0.87$ ;  $t = 11.55$ ,  $P < 0.05$ ), subjective norm ( $\beta = 0.83$ ;  $t = 10.60$ ,  $P < 0.05$ ), and perceived behavioral control ( $\beta = 0.85$ ;  $t = 9.461$ ,  $P < 0.05$ ). The results also showed that the attitude (H<sub>5</sub>:  $\beta = 0.78$ ;  $t = 10.49$ ,  $P < 0.05$ ), and perceived behavioral control (H<sub>9</sub>:  $\beta = 0.16$ ;  $t = 2.477$ ,  $P < 0.05$ ) had significant positive effects on mobile payment intention. Unexpectedly, subjective norm was the only unsupported hypothesis with a wrong sign. H<sub>7</sub> argues that subjective norm has a positive relationship on mobile payment intention, this argument was found unsupported by the collected data as  $\beta = -0.02$ ;  $t = -0.292$ ,  $P > 0.05$ .

Notably, the results showed that the mobile payment intention has a positive relationship with financial inclusion (H<sub>10</sub>:  $\beta = 0.60$ ;  $t = 8.462$ ,  $P < 0.05$ ). The effect

**Table 2** SEM results for the structural paths

| H <sub>X</sub>  | Relationship                     | $\beta$ .C | T-value | P-value | Decision      |
|-----------------|----------------------------------|------------|---------|---------|---------------|
| H <sub>1</sub>  | Beliefs -> Attitude              | 0.87       | 11.55   | ***     | Supported     |
| H <sub>2</sub>  | Beliefs -> Subjective Norm       | 0.83       | 10.60   | ***     | Supported     |
| H <sub>3</sub>  | Beliefs -> Perceived Control     | 0.85       | 9.461   | ***     | Supported     |
| H <sub>5</sub>  | Attitude -> M-payment            | 0.78       | 10.49   | ***     | Supported     |
| H <sub>7</sub>  | Subjective Norm -> M-payment     | -0.02      | -0.292  | 0.770   | Not supported |
| H <sub>9</sub>  | Perceived Control -> M-payment   | 0.16       | 2.477   | 0.013   | Supported     |
| H <sub>10</sub> | M-payment -> Financial Inclusion | 0.60       | 8.462   | ***     | Supported     |

**Table 3** SEM results for the mediation structural paths

| H <sub>X</sub> | Relationship                              | Estimate | $\beta$ .C | Threshold | P-value | Decision  |
|----------------|---|----------|------------|-----------|---------|-----------|
| H <sub>4</sub> | Beliefs -> Attitude -> M-payment          | 0.676    | 0.671      | >0.08     | 0.002   | Supported |
| H <sub>6</sub> | Beliefs -> Subjective Norm -> M-payment   | 0.525    | 0.539      | >0.08     | 0.002   | Supported |
| H <sub>8</sub> | Beliefs -> Perceived Control -> M-payment | 0.585    | 0.590      | >0.08     | 0.003   | Supported |



of the mobile payment intention on financial inclusion was 0.60. The proposed model accounted for 36% of the variance in financial inclusion, which indicates a median effect of mobile payment intention on financial inclusion (Cohen 1988). Finally, the above results have empirically explained the factors that affect mobile payment usage for achieving financial inclusion in Palestine.

In addition, the mediation relationships were examined by multiplying the direct effect between beliefs and the three-mediating constructs (attitude, subjective norm, and perceived behavioural control) with the direct effect between the three-mediating constructs and mobile payment intention to obtain the indirect effect between beliefs and mobile payment intention (Amoako-Gyampah and Acquah 2008). As shown in Table 3, the results of the indirect effect between beliefs and mobile payment intention through attitude ( $H_4$ :  $E = 0.676$ ), subjective norm ( $H_6$ :  $E = 0.525$ ), and perceived behavioural control ( $H_8$ :  $E = 0.585$ ), were found to be higher than 0.08 which confirmed the indirect relationships between beliefs and mobile payment intention through the three-mediating constructs proposed in this research.

Moreover, to confirm the indirect relationships, a bootstrapping analysis was conducted. The results showed that attitude ( $H_4$ :  $\beta.C = 0.671$ ,  $P < 0.05$ ), subjective norm ( $H_6$ :  $\beta.C = 0.539$ ,  $P < 0.05$ ), and perceived behavioral control ( $H_8$ :  $\beta.C = 0.590$ ,  $P < 0.05$ ), were found to be statically significant at the 0.05 level. As expected, these results confirm the mediation role of attitude, subjective norm, and perceived behavioural control between beliefs and mobile payment intention.

### 4.3 *Discussions and Implications*

Despite the worldwide spread of mobile payment services, the Palestinian mobile payment business is not widespread compared to other countries because of the considerable uncertainty of the business environment. Palestinian's financial sector is traditionally known for its complications and high entry barriers, where most residents (around 75%) are still financially excluded. There is no doubt about the importance of involving the excluded segment of the society in economic activities, especially in Palestine, where the unemployed, low-income people and women find themselves excluded from financial services offered by financial institutions due to access barriers and high access costs.

These segments can demonstrate an excellent opportunity for the Palestinian economy. According to Demircuc-Kunt et al. (2018), around 20% of the population have borrowed money from family or friends, while only 5% have borrowed from a financial institution. This shows the gap that formal financial institutions can fulfil to empower these segments. The restrictions and obstacles facing the excluded population informal financial institutions denied them access to banking services. This is clearer when knowing that around 12% of the population have saved using a savings club or a person outside the family. In contrast, only 6% saved at a financial institution (Demircuc-Kunt et al. 2018). This shows a great opportunity that mobile payment can make available by facilitating the saving process of these segments.

Using mobile payment, they can save, transfer, and receive money easily and quickly in the palm of their hand.

Additionally, more than 25.3% of Palestinians are unemployed, which is above average rate in the Middle East (Excluding the GCC countries) that stands at 10.8%, suggesting a particularly critical situation, where political instability and active conflicts continue to undermine socio-economic development (PCBS 2020). In addition, Palestinian's involvement in entrepreneurial projects is even disappointing as only 3% and 5% have saved or borrowed to start, operate, or expand a farm or business, respectively (Demirguc-Kunt et al. 2018). This requires more actions to improve the access of Palestinians to financial services using current technology. Improving Palestinians' access to financial institutions can improve their living standard, especially by offering them special financing contracts that enable them to feel more secure, such as diminishing partnership and trust financing contracts offered by Islamic financial institutions.

It was also shown that 71.74% of respondents are willing to adopt mobile payment in their future transactions, and 13.74% are not willing to use mobile payment, while 14.52 are still not decided whether to adopt mobile payment or not. However, the acceptance rate is relatively high where the actual use of mobile payment is too far from this percentage as 2%. This requires monetary authorities, mobile payment providers and social organizations to work together to improve the actual usage by educating the potential users about the benefits of mobile payment.

## 5 Conclusion

This study was set out to determine the factors influencing mobile payment adoption and its role in promoting financial inclusion in Palestine. All direct paths within the model were supported at the 0.05 level, except for the path between subjective norm and mobile payment intention, which was found to be irrelevant to the formation of potential users' intention to use mobile payment. Furthermore, the proposed model supports the mediation role of attitude, subjective norm, and perceived behavioural control between beliefs and mobile payment intention. It was also shown that the proposed model explains around 80% of behavioural intention to adopt mobile payment among Palestinians.

One of the more significant findings to emerge from this study is that mobile payment intention positively correlates with financial inclusion. It was also shown that the effect of mobile payment on financial inclusion is a median effect, where the proposed model explained around 36% of the variation in financial inclusion. This has significant implications, as financial inclusion is influenced by other factors not explored in this research. It is recommended that further research be undertaken to discover and investigate the factors influencing financial inclusion in Palestine. Considering a high expected value of financial inclusion, more active development of electronic payment business and a more pragmatic approach of electronic payment management by the government are needed to meet user demands.

This finding of the current research extends the body of knowledge that benefits the researchers, public, business community, and policymakers. This is because dealing with mobile payment and financial inclusion is a contemporary and growing issue. Regarding the research community, this work provides some insight into Palestinians’ perception of mobile payment, where this population has been sparse and lacking in the literature. Additionally, the research developed a measurement scale for financial inclusion that can be used comfortably in further studies. Accordingly, the potential mobile payment users will make informed choices on whether to adopt or reject mobile payment products. They can influence the design of these products according to their needs.

In terms of business communities in Palestine, either mobile payment providers or financial institutions, they must put strategies that respond to the opportunities and threats by considering the high rate of mobile payment acceptance among Palestinians and the strong positive relationship between mobile payment and mobile payment financial inclusion. Mobile payment has the potential to offer broader markets for financial institutions by reaching the previously ‘unbanked’ people in Palestine. It is anticipated that the findings will give insights to the Palestine Monetary Authority to formulate policies that encourage the effort to embrace the ‘unbanked’ population in Palestine by benefiting from the mobile revolution.

### Appendix 1: Assessment of the Measurement Model

| Constructs and related measurement items |   | Loadings | Composite reliability | AVE   |
|--|---|----------|-----------------------|-------|
| Intention to use mobile payment          |   |          | 0.926                 | 0.808 |
| IU1                                      | I intend to use mobile payment at some point in the future                        | 0.90     |                       |       |
| IU2                                      | I am willing to use mobile payment  | 0.93     |                       |       |
| IU3                                      | If available, I would definitely use mobile payment                               | 0.87     |                       |       |
| Attitude toward using mobile payment     |   |          | 0.915                 | 0.682 |
| AT1                                      | Using mobile payment would be a good idea   | 0.79     |                       |       |
| AT2                                      | Using mobile payment would be a wise decision                                     | 0.79     |                       |       |
| AT3                                      | Using mobile payment would be beneficial  | 0.81     |                       |       |
| AT4                                      | I like the idea of using the mobile payment for conducting financial transactions | 0.89     |                       |       |

(continued)

(continued)

| Constructs and related measurement items                  |   | Loadings | Composite reliability | AVE   |
|---|---|----------|-----------------------|-------|
| AT5   | Using mobile payment would be a pleasant experience   | 0.85     |                       |       |
| Subjective norm towards using mobile payment              |   |          | 0.875                 | 0.584 |
| SN1   | I intend to follow the advice of my friends to use mobile payment                                   | 0.79     |                       |       |
| SN2   | I feel it is expected of me by others to use mobile payment   | 0.79     |                       |       |
| SN3   | I feel being under the influence of others to use mobile payment                                    | 0.65     |                       |       |
| SN4   | I feel comfortable following the advice of some knowledgeable people to use mobile payment          | 0.79     |                       |       |
| SN5   | The fact that many people whom I may know already use mobile payment makes me consider using it too | 0.79     |                       |       |
| Perceived behavioral control towards using mobile payment |   |          | 0.844                 | 0.578 |
| PC1   | I have a great deal of control in terms of resources and opportunities over mobile payment          | 0.72     |                       |       |
| PC2   | It is easy for me to use mobile payment   | 0.82     |                       |       |
| PC3   | I feel a great deal of confidence about my ability to use mobile payment                            | 0.84     |                       |       |
| PC4   | I do not feel any difficulty in using mobile payment  | 0.66     |                       |       |
| Belief about using mobile payment                         |   |          | 0.833                 | 0.501 |
| BF2   | I do not involve myself in fraud by using mobile payment  | 0.69     |                       |       |
| BF3   | I should not have problems if I want to convert electronic money into cash                          | 0.72     |                       |       |
| BF4   | I can even use electronic money for some transactions without converting it into cash               | 0.76     |                       |       |

(continued)

(continued)

| Constructs and related measurement items |   | Loadings | Composite reliability | AVE   |
|--|---|----------|-----------------------|-------|
| BF6                                      | So many other people are using mobile payment cannot be wrong   | 0.72     |                       |       |
| BF7                                      | My family would approve of me using mobile payment  | 0.67     |                       |       |
| <b>Financial inclusion</b>               |   |          |                       |       |
| Accessibility of financial services      |   |          | 0.923                 | 0.705 |
| AC1                                      | I have an account with a financial institution  | 0.83     |                       |       |
| AC2                                      | I have access to the credit   | 0.84     |                       |       |
| AC3                                      | I have access to debit/credit cards   | 0.89     |                       |       |
| AC4                                      | I have access to online/mobile banking  | 0.86     |                       |       |
| AC5                                      | I have access to insurance products   | 0.78     |                       |       |
| Availability of financial services       |   |          | 0.876                 | 0.647 |
| AV2                                      | There is an ATM near to me  | 0.55     |                       |       |
| AV3                                      | I believe the financial sector provides a wide variety of financial products                            | 0.84     |                       |       |
| AV4                                      | I believe the financial sector provides a wide variety of financial services                            | 0.93     |                       |       |
| AV5                                      | I believe the financial sector provides financial products and services that fit for my financial needs | 0.84     |                       |       |
| Usage of financial services              |   |          | 0.858                 | 0.549 |
| US1                                      | I use financial services regularly  | 0.78     |                       |       |
| US2                                      | I make payments using debit/credit cards  | 0.81     |                       |       |
| US3                                      | I make money transfer through a financial institution (Bank)  | 0.70     |                       |       |
| US4                                      | I pay online through a financial institution (Bank)   | 0.70     |                       |       |
| US5                                      | I pay bills online through a financial institution (Bank)   | 0.70     |                       |       |

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# The Impact of Green Human Resource Management Practices with Sustainable and Operational Performance: A Conceptual Model



Ahmed Zaid  and Ayham Jaaron 

**Abstract** Although wide ranges of studies are available on manufacturing sustainable performance issues, literature on green human resources management (GHRM) practices and their impact on manufacturers' sustainable and operational performances is scarce. This study aims at identifying GHRM practices and assessing their impact on sustainable and operational performance. This current study adopted systematic literature and a content analysis approach for the development of a conceptual model. It has been found that the most influencing GHRM practices are green recruitment and selection, green training, green performance evaluation, and a green reward system. The uniqueness of this study is the evaluation of the GHRM practices with sustainable and operational performance in a single study. Moreover, the paper highlights that manufacturing organizations must focus on GHRM practices to deliver enhanced sustainable performance besides operational performance to achieve competitive advantage. For future studies, there is a need to empirically verify the proposed conceptual model presented in this paper. This study adds to the literature in the area of GHRM by advocacy to tackle environmental challenges across the globe.

**Keywords** Green human resource management · Human resource management · Resource-based view · Conceptual model

## 1 Introduction

The manufacturing sector is called the engine for the economy of any country, especially for developing countries. In most countries, this sector is contributing

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A. Zaid (✉)

Department of Logistic Management, Faculty of Business and Economics, Palestine Technical University-Kadoorie, Tulkarm, Palestine

e-mail: [a.zaid@ptuk.edu.ps](mailto:a.zaid@ptuk.edu.ps)

A. Jaaron

Department of Management and Entrepreneurship, The Centre for Enterprise and Innovation, Leicester Castle Business School, De Montfort University, Leicester L27BY, UK

e-mail: [ayham.jaaron@dmu.ac.uk](mailto:ayham.jaaron@dmu.ac.uk)

around 80% of the overall country's export. Besides this, it is also known as the largest exporting sector in the world (Abdullah et al. 2016). Even due to the recession, economic shift manufacturing maintains its growth and contributes towards the highest after service sector for the economic growth of the country. This situation creates enough pressure on the manufacturing sector to be more efficient and effective in its production and operations in order to be globally competitive (Mishra and Mishra 2017). Meanwhile, environmental issues force companies to develop policies, regulations, and cultures. The variations of discernment which include the legal obligations and pressing stakeholders are found to be affecting the performance of organizations (Ahmad 2015). Thus, organizations must convert all their segments toward green practices. Especially, manufacturing firms are required to focus on the impact of the environment by seeing the relationship between social growth and financial, particularly in terms of stand-alone virtues (Masri and Jaaron 2017). Thus, it has become essential for manufacturing firms to convert toward green practices in all their segments.

In addition, manufacturing firms are presumed to be involved in adopting green practices within their operations and are expected to have good knowledge of green implementations; this argument is also supported by Zaid et al. (2018). Hence, this enables us to connect GHRM practices with corporate strategy in ensuring the improvement of organizational performance (Anusingh and Shikha 2015). In light of this, GHRM has managed to attract considerable attention from business entities considering its concern regarding the planned and systemic arrangement of typical human resource management (HRM) practices with the ecological organization's objectives. The vicissitudes of discernment in environmental sustainability which include the legal obligation and pressing stakeholders are found to be affecting the performance of organizations (Ahmad 2015). Therefore, it is safe to say that coordination among different areas of functional and human resources is critical (Alareeni and Hamdan 2020; Haddock-Millar et al. 2016).

HRM is very important in ensuring that sustainability is possible to be achieved (Jabbour and Santos 2008). The growth and development of human resource models and frameworks have been receiving a considerable amount of attention about numerous matters (Jackson et al. 2014; Scully-Russ 2015), which has caused the emergence of the term GHRM that further describes the important relationship between HRM and environmental concerns (Jabbour and Jabbour 2016; Jabbour et al. 2010; Renwick et al. 2013). Moreover, it is evidenced that GHRM plays a major role in management considering its ability to motivate companies to aim higher concerning their environmental sustainability performance (Cohen et al. 2012; Firdaus and Udin 2014; Jabbour 2015; Young et al. 2015). The world has become a global village and now the competition has shifted from the organization level to the network level. Thus, it can be concluded that green environmental practices should be implemented in all parts of the system and especially human resources that link all parts (Alareeni and Hamdan 2020; Obaid and Alias 2015). This study aims to present comprehensive literature regarding green human resources and their relationship with sustainable and operational performance.

It has been found that most of the recognized studies have paid attention to the performance of organizations rather than individual practices regarding the advantages of GHRM (Ahmad 2015; Guerci and Carollo 2016; Mishra and Mishra 2017; Tadić and Pivac 2014). Hence, it is clear that none of them have further examined the effect of GHRM bundle practices on the manufacturing industries, especially from the social and operational points of view. Therefore, the gap in the literature has driven the present study to further contribute to the literature, which is predictable to help manufacturing firms in reducing the degradation of the environment. Apart from that, the concept of the GHRM bundle seems to suggest that the association of interconnected essentials within GHRM practices is reliable internally, which is dependable with strategic orientation and different contextual factors of a firm (Alfes et al. 2013; MacDuffie 1995). On top of that, Jadhav and Mantha (2013) affirm that GHRM bundles are able to produce significant efficiency to design synergistic effects that are greater to slightly single GHRM practice on the performance of manufacturing firms (Arulrajah et al. 2016). However, the motivation behind this paper is to develop a conceptual framework that explores the effects of GHRM bundle practices on four dimensions of organizational performance, namely operational performance (OP), environmental performance (EP), economic performance (Ec.P), and social performance (SP) which are derived from the following justifications:

It has been instituted that developed countries have switched toward green practices but developing countries are lacking due to high initial cost, lack of technology, and expertise (Vazquez et al. 2016). So, a major gap has been identified from the literature based on the empirical evidence from manufacturing firms in developing countries (Masri and Jaaron 2017; Rehman et al. 2016; Zhan et al. 2016), particularly in terms of knowledge on GHRM. Hence, this paper understands the need to add original evidence to the literature on the GHRM field. Regarding this, any effort in decreasing the carbon footprints of developing countries' organizations is mostly a supportive environment as well as sustainable development.

The published GHRM literature has hypothesized and demonstrated empirically that individual GHRM practices aim at developing the EP, Ec.P, and SP of the firm which is believed to result in superior EP, Ec.P, and SP (Guerci et al. 2016; Jacobs et al. 2010; Masri and Jaaron 2017; Rezaei-Moghaddam 2016). However, very little is known about the relationships between GHRM and a full spectrum of EP and Ec.P (Longoni et al. 2016). In addition, none of the studies have examined the relationships between GHRM bundle practices and manufacturing organization's OP and SP. Therefore, the present study recognizes the value of a holistic view of sustainability performance (Hahn et al. 2010), and at a subtler level the OP of manufacturing organizations (Jabbour et al. 2013a,b). Apart from that, it is recommended for further research to be conducted to explore the simultaneous effects that may be exerted by GHRM on a full spectrum of EP, Ec. P, SP, and OP.

The purpose of this research was to identify the influence of GHRM practices on sustainable and operational performance. Regarding this, an extensive literature review and content analysis were conducted based on the archival method in order to achieve the objective of this study. On top of that, the present study employs a methodology to review the articles cited in the databases which include Scopus,

Google Scholar, ISI Web of Knowledge, and Emerald with “Green HRM” or “GHRM bundle”. Hence, the present study acts as desk research rather than a survey or any other mode of research. Overall, it is hoped that manufacturing firms can recognize a helpful approach in applying GHRM practices that will aid in the improvement of their organizational sustainable performance.

The structure of the paper is mentioned next. The following section will present the established studies to outline the concept of GHRM and its relationship with organization performance as well as focusing on the concept of GHRM “a bundle” at a subtler level (Sect. 2). Next, the proposed conceptual model will be presented (Sect. 3), while section four will delineate the discussion. Lastly, the conclusions and recommendations for future research were illustrated in Sect. 5.

## 2 Literature Review

This study comprised one independent variable GHRM practices and two dependent variables namely sustainable performance and operational performance. This part explains a brief description of the background of the topic. First GHRM has been discussed. Secondly, organizational performance has been illustrated. Thirdly, all three aspects of sustainable performance such as economic, environmental, and social performance as well as operational performance and their relations with GHRM have been expressed.

### 2.1 *Green Human Resource Management*

HRM has become one of the essential aspects of operation due to its significant responsibility in managing human resources (Ahmad 2015). The unapparent advantage such as human capital is found to be more beneficial compared to those substantial ones in ensuring the targeted value can be achieved (Bakar and Ahmad 2010). The resource-based view (RBV) is widely recognized as a theory of well-established that delivers the conceptual norms for the arena of research of GHRM (Arulrajah and Opatha 2016). Moreover, RBV seems to suggest that firms may be able to develop critical resources by increasing their competitiveness (human resources activities) as well as strong capabilities (Barney 2001; Barney et al. 2011). Generally, environmental activities tend to produce strategic resources that are believed to be difficult to imitate (Aragón-Correa 1998; Jabbour 2015; Wagner 2011). Nevertheless, this field of research is not foreign as the relationship between the capabilities of an organization and its competitive advantage (sustainable organizational performance) has been sensibly disputed in most of the established studies (Aragón-Correa et al. 2008; Clemens and Bakstran 2010; Solovida et al. 2017). Overall, RBV can be regarded as a theoretic lens in understanding the greening of organizations (Chiappetta et al. 2017; Yusliza et al. 2017). In this study, the RBV theory managed to articulate the initial

concept of the model and connected the main practice of green human resources as it is believed to superiorly enhance the organization.

It has been found that previously HRM focused on individual practices (Combs et al. 2006), this study perceived GHRM practices as a “bundle” that can improve the sustainable performance of a firm. This is corresponding with the study of Renwick et al. (2013) which calls for more studies to be conducted in investigating the relationship between organizational performance and GHRM bundle practices. Hence, this enables the organizations to link GHRM practices with corporate strategy in ensuring the improvement of organizational performance (Anusingh and Shikha 2015). In light of this, GHRM has managed to attract considerable attention from business entities considering its concern regarding the planned and systemic arrangement of typical HRM practices with the ecological organization’s objectives. Consequently, it is safe to say that harmonization among different areas of functional and human resources is critical (Haddock-Millar et al. 2016). On top of that, GHRM practices are regarded as effective tools in maintaining the sustainability of a business.

Recently, a considerable amount of studies has been concentrating on GHRM as well as human capital towards sustainability and green issues, especially in the context of manufacturing (Jabbour 2011; Jabbour et al. 2013a,b; Kaur 2011; Lee 2009; Unnikrishnan and Hegde 2007). Furthermore, the manufacturing sector has majorly contributed to the issue of environmental pollution in this country which must be assessed, monitored, and rectified (Masri and Jaaron 2017; Rehman et al. 2016). Hence, it is necessary to manage the environmental issues which adopt different environmentally-friendly practices due to the fact that manufacturing firms are important for society. More importantly, several organizations are leading toward developing countries and implemented GHRM practices to generate awareness of environmental sustainability (Ehnert et al. 2016; Jackson et al. 2011; O’Donohue and Torugsa 2016; Renwick et al. 2013). Nevertheless, GHRM practices are hardly implemented by manufacturing organizations in developing countries (Masri and Jaaron 2017), and, unfortunately, the majority of them are not aware of the importance and benefits of the practices in sustaining a business (Zhan et al. 2016). Firms have come under inspection from stakeholders for example consumers, authoritarians, non-governmental firms, opponents, and employees to confirm social sustainability and environmental in business operations (Haddock-Millar et al. 2016; Vazquez et al. 2016). However, the adoption of green practices to reduce environmental woes and improving financial performance (Yusoff et al. 2015) will help them to become more sustainable (Jabbour and de Sousa Jabbour 2016).

Developed countries applied green practices as they are rich in resources in terms of finance, expertise, knowledge, and support but developing countries are facing problems like lack of technology, innovation and expertise (Tadić and Pivac 2014). Hence, GHRM needs investments from resources to convert operations toward the green. Inside the domain of environmental management, Jabbour et al. (2010) established the distributions of certain GHRM dimensions to the evolutionary phases of environment management. Teixeira et al. (2016) established the GHRM instances especially for other environmental purposes by the representative of the positive effect of green training. It has been claimed that training improves the logic of ethics in

business and accountability that expands the environmental performance. Likewise, these investigations sustenance GHRM as a component for the overall effectiveness of environment management (Anusingh and Shikha 2015), previous studies propose that the associations between GHRM, environmental management, and numerous procedures of monetary benefits are complex and further require empirical and theoretical development (Jabbour et al. 2010; Wagner 2011). For instance, engaging GHRM to progress environmental strategies may upsurge the likelihood of financial scarcity and negatively influence (Guerci and Carollo 2016).

GHRM is linked with HRM function which acts as the key factor in an organization in implementing green creativities (Mandip 2012). Moreover, GHRM is rooted in the philosophy of green management, practices, and policies, which is followed by a firm for environmental management (Patel 2014). On top of that, firms will be able to improve their EP's sustainably by gaining a deeper understanding of the GHRM practices (Arulrajah et al. 2016) because GHRM practices are considered as a more influential tool in making industries and their green operations (Renwick et al. 2008). Hence, it is safe to say that green behavior, green performance, green competency, and green attitude, of HRM, can be designed and redesigned through the adaptation of GHRM practices (Arulrajah et al. 2016). GHRM consists of all practices policies, systems, and activities to assist a firm to execute its programs in order to become an environmental organization. In this case, the organization is required to decline its carbon emission and rise carbon credits as well as in areas pertaining to boarding procurement of induction, manpower, supervision, performance, training and development, reward management, and compensation (Opatha and Arulrajah 2014).

GHRM is also considered as one of the strategic management tools to diffuse green ideologies within firms (Aragón-Correa et al. 2013; Deshwal 2015). Firdaus and Udin (2014) further state that a high number of firms have utilized GHRM, whereby the implementation of GHRM has seen to benefit the organization in terms of creating employees with better morale and green organizations that can produce better financial performance. Moreover, GHRM becomes important in the arena of management business due to the growing hold of the companies considering that the green creativity and initiatives can benefit the environment and increase the retention of talent and appeal pool (Govindarajulu and Daily 2004; Patel 2014).

The previous literature on HRM has received little attention because most of the published studies only focused on the view of the impact of practices on firm performance (Combs et al. 2006). A study by Renwick et al. (2013) hypothesizes that GHRM practices might have well effects on organizational and environmental performance through a joint implementation. Recently, it can be observed that re-searchers have reached further dimensions regarding the association between human resource practices and organizations performances based on the assumption that organizations performances will be more noteworthy if the impact of human resource practices is observed as a synergic influence of mutual practices, generally called "bundles" instead of relying on a single and isolated variable (Combs et al. 2006; Tadić and Pivac 2014). Furthermore, "bundles" should represent the combinations of interconnected and consistent human resource practices that should be complementing each other. The integration of practices shows a better and more straight impact on

the competitive advantage of companies and the performance of the organization (MacDuffie 1995). A considerable amount of research has been carried out in the attempt of identifying the relationship between HRM practices and the performance of the company through interrelated and aggregated essentials of human resource practices (Bowen and Ostroff 2004).

The focusing concept of the GHRM bundle is mostly linked to the configurational point of view, which recommends that the consortium of associated essentials of GHRM practices should be performed in an internally reliable way to ensure that they are in line with various contextual factors and the firm strategic orientation (Alfes et al. 2013). Moreover, GHRM requires workers to be involved fully in the effort of getting olive green (Wagner 2013), in which they are recommended to continuously practice green endeavors at their workplace. Further, this practice assumes to be included in training sessions, recruitment, and compensation (Wood 2014) as it is believed to be able in establishing GHR (Rani and Mishra 2014). According to Jadhav and Mantha (2013), the GHRM bundle acts as an adhesive that attaches numerous practices in order to form a synchronous unit. Concerning this, the joint benefits between employees and organizations ought to indicate consistent sequence and internally reliable human resource practices. Overall, the incorporation of practices is expected to unveil a greater impact on the improvement and performance of a company (Tadić and Pivac 2014).

In summary, this paper focuses on GHRM practices as a “bundle” instead of treating them as specific individual practices based on the two reasons derived from the recent green HRM literature. First, it is highly recommended for future studies to widen their knowledge by investigating a broader aspect of GHRM standards in developing a more detailed arrangement that recognizes the potential issues and advantages in dealing with sustainability difficulty to achieve one of the objectives of the current paper which is to exploit GHRM best practices to improve the firm’s sustainable performance (Guerci and Carollo 2016; Jackson 2012). Second, only a limited number of studies have been conducted on GHRM bundle practices; hence, this shows the need to conduct more quantitative studies on the entire GHRM system instead of only focusing on several GHRM practices (Longoni et al. 2016; Renwick et al. 2013). Consequently, this research reflects the term of GHRM bundle as an organized set of HRM practices that will influence sustainable performance. However, it is important to note that these practices must be aligned with HR management strategies and objectives of the firm’s green management plan (Chiappetta et al. 2017). Hence, the GHRM bundle practices involve the human/organizational aspects that are deemed relevant to the green issues, namely green selection and recruitment, green training and evaluation of performance, and green rewards (Chiappetta et al. 2017; Guerci et al. 2016; Jabbour et al. 2013a,b; Longoni et al. 2016; Masri and Jaaron 2017; Tang et al. 2017).

The above elements have to be highlighted by those who are responsible to guide a team with the main concern of instilling environmental-friendly attitudes in the working environment (Kim et al. 2017). In regard to this, the ecological operation practiced by a company is shown based on its environmental habit and values (Jackson et al. 2011). On a similar note, it should be noted that environmental-friendly



practice is considered as one of the backbones of GHRM (Chiappetta et al. 2017; Jabbour et al. 2013a,b; Renwick et al. 2013) which is expected to emphasize the importance of ecological knowledge, change in habit, and enhancement of operation abilities (Sudin 2011). In this case, a fundamental grasp on ecological awareness will lead to a promising ecological practice (Mohanty and Prakash 2014; Renwick et al. 2013), including the importance of assessing the ecological accomplishment as part of GHRM (Jabbour et al. 2010). However, it should be noted that constant assessment tends to hinder the workers from practicing ecological operations (Renwick et al. 2013).

## 2.2 *Organizational Performance*

An organization's comprehensive performance includes sustainability performances and operational performance, which can be used to assess the environmental, economic, social, and operational superiority of the organization, respectively (Geng et al. 2017; Jabbour et al. 2013a,b; Younis et al. 2016). EP is a description of the organizational capacity to minimize air emission and discharge, reduce hazardous and harmful material utilization, and lessen the incidence of environmental incidents (Zhu et al. 2013). In addition, environmental performance reflects the ability of the organization to protect nature and its integrity for future generations (Ricardo et al. 2011). According to Daily and Huang (2001), organizations are enhancing their environmental performance by setting human resource management practices that support the entire adoption and implementing an environmental management system. Gunasekaran et al. (2015) stated that organizations are restructuring their relationship for enhanced environmental performance and tuning to clients and suppliers to get data and help them concerning contamination avoidance.

The Ec.P refers to the economic and marketing performances that are enhanced due to the incorporation of green practices, which improves organizational stature compared to industrial standards (Zhu et al. 2013). The improvement of finances encompasses decreased costs of purchasing material, energy consumption, waste discharge, and cost of environmental accidents (Younis et al. 2016). The improvements based on marketing conditions include an increased rate of return on sales, increased earnings and average earnings growth, and an increase in average market share growth (Abdullah et al. 2014). Furthermore, it is undeniable that hiring environmentally conscious workers will be very appealing to the environmental reputation of the organizations (Patel 2014). Correspondingly, motivation, skills, retention, and job-related results can be improved along with the economic performance of the organization by enhancing the involvement of employees in green actions apart from providing clear environmental goals and sufficient training (Anusingh and Shikha 2015; Teixeira et al. 2016).

According to the social aspect, the SP has a significant impact on green practices that are linked to the company's image and its assets from the viewpoint of stakeholders, such as customers, workers, suppliers, and the public (Newman et al.



2016). Nowadays, incorporating SP has become vital to stimulate business. So, it became mandatory for firms can contribute to the social aspects through the integrated approach with human resource members (Rothenberg et al. 2017). This integrated approach among human resource members can encourage interconnection inside and outside society and be assured of customer satisfaction (Huo et al. 2015). Finally, the OP is described as the efficiency of the firm's operations which involves the quality of the product, costs, flexibility of items, delivery, development of the new product, and time-to-market the new products (González-Benito and González-Benito 2005; Jabbour et al. 2013a,b). The upcoming sections will discuss deeply each component of organizational performance employed in this study and their relations to GHRM bundle practices.

### 2.3 *GHRM Practices and Environmental Performance*

The concern of EP is to save energy and at the same time reduce waste, pollution, and emissions (Walls et al. 2012). Moreover, it should be noted that GHRM requires employees to be fully involved in their attempt of getting greener (Wagner 2013), or in other words, continuously practicing green endeavors in their workplace. On a similar note, this practice should be involved in training, recruitment, development, and compensation (Wood 2014) to establish green human resources (Rani and Mishra 2014). The existing literature asserts that organizations can adopt suitable human resource practices to inspire their workers in achieving the objectives of environmental sustainability (Ahmad 2015). Regarding this, a deeper investigation should be conducted in determining the factors that engage the employees to be instilled with pro-environmental behavior as well as to help organizations to become greener (Paillé et al. 2014). Moreover, it is crucial to note that companies cannot take action without the employee's support, particularly in way of knowledge, commitment, employee's skills, and productivity (Zhu et al. 2012). On top of that, GHRM strives to improve competency, destroy environmentally, and re-establish human resource tools, products, and procedures with better efficiency but at a lower cost. More importantly, Haddock-Millar et al. (2016) highlight the implication of pushing 'greening' functions as an important element in improving Ec.P and EP. Paillé et al. (2014) emphasize that the EP of a company will be enhanced and the worker will feel prompted regarding the implementation of GHRM which will subsequently provide the company with a more serious business position. Moreover, GHRM plays a very important role in enriching the well-being of the workers as well as enhancing EP (Renwick et al. 2013). According to a study conducted on German companies, there is a positive relationship between the adoption of sustainability standards and the company's accomplishments which are moderated through the connection of the workers (Wolf 2014). On top of that, the companies that are mainly concerned about having an excellent ecological operation are recommended to choose and hire workers that can be committed to handling ecological problems, particularly through the implementation of GHRM (Chiappetta et al. 2017; Renwick

et al. 2013). A study by Russo and Fouts (1997) recommended that RBV is accomplished of distinguishing the resources utilized by the organization which is believed to affect the organization's EP and ultimately improve its Ec.P (Solovida et al. 2017).

## 2.4 *GHRM Practices and Economic Performance*

Ec.P refers to profitability in general which acts as a significant reason for companies to implement HRM practices (Tadić and Pivac 2014). Most of the published studies agree that financial performances are mainly driven by worker outcomes which are highly related to several environmental-oriented practices including motivation, involvement, and competence, (Jabbour and de Sousa Jabbour 2016; Masri and Jaaron 2017). Nevertheless, it is undeniable that hiring environmentally aware employees is appealing to firms considering that employees will be encouraged to get involved in environmental training that can expand their level of skills, motivation level, job-related results, and retention, and also provide environmental activities (Anusingh and Shikha 2015; Teixeira et al. 2016), thereby resultantly increase the Ec.P of the organizations. In relation to this, it should be noted that the Ec.P of an organization can be improved through the enhancement of human/social results by providing several interior benefits, for instance, capabilities of development, providing career opportunities, conducting work-life balance (WLB) plans, and also practicing ethical activity and culture. In addition, firm brand and profitability are influenced positively by the environmental outcomes of the business (Khojastehpour and Johns 2014).

Furthermore, pro-environmental initiatives are performed by implementing GHRM practices. However, the previous studies on green human resource domains managed to reveal a positive relationship between GHRM practices and Ec.P (Dangelico 2015; Longoni et al. 2016; Miles and Covin 2000; O'Donohue and Torugsa 2016). In regard to this, Margaretha and Saragih (2013) recommended that organizations tend to focus on green sustainable business practices by initiating a greener culture of corporate to have better productivities, minimize costs, and a better environment for engagement of the employee. Moreover, Firdaus and Udin (2014) state that a large number of firms have utilized GHRM and they managed to gain better profit, superior assurance for the representatives, and better financial performance for green associations. Longoni et al. (2016) affirm that economic value can only be produced by a very inspired and dedicated workforce. In addition, the growing awareness among the citizens in regard to environmental issues has initiated the first step of transforming the world into a green economy (Khurshid and Darzi 2016). Additionally, it is undeniable that hiring environmentally conscious workers will produce workers who are talented will be very appealing to the environmental reputation of the organization (Patel 2014). Correspondingly, motivation, skills, retention, and job-related results can be improved along with the Ec.P of the organization by enhancing the involvement of employees in green actions apart from providing clear environmental goals and sufficient training (Anusingh and Shikha

2015; Teixeira et al. 2012). Also, the study conducted by O'Donohue and Torugsa (2016) emphasizes that GHRM play a crucial role in improving both the EP and Ec.P of the Australian manufacturing firms through the enhancement of employees' capabilities, inspiring staff by investing resources in them, and encouraging commitment to environmental-friendly human resource practices which is believed to significantly contribute to better economic benefits for the firm. Dangelico (2015) states that firms with higher levels of profits are capable to add value to their environmental sustainability by investing more money to build employee green teams, which is expected to enhance their EP and their reputation.

On top of that, GHRM plays a major role in refining both the environmental and financial performance (Renwick et al. 2013). According to Viswanathan (2017), firms that adhere to sustainable GHRM practices will be able to boost their sales for a long-term duration as well as reduce expenses by achieving a higher volume of sales. Moreover, GHRM proposals yield better efficiencies, reduced cost (Goswami and Ranjan 2015), and enhanced working environment to promote better engagement of employees, which in turn helps the organizations to operate in a green sustainable fashion (Deshwal 2015). Delmas and Pekovic (2013) affirm that the adoption of green HRM principles and practices provides the opportunity for firms to improve their profit margins, reduce negative effects on the environment, and enhance their work rate.

## ***2.5 GHRM Practices and Social Performance***

The main concern of SP is to identify the outcomes of the GHRM practices in regard to the enhancement of product and company image, protection of employee health and safety, and maintenance of customer loyalty and satisfaction (Khurshid and Darzi 2016). Wagner (2013) claims that organizations are managed to obtain tangible through investing in social responsibilities that are probably able to make strengthen an organization's performance regarding satisfaction level of customer and employee, recruitment excellent staff, and innovation. As mentioned by Rezaei-Moghaddam (2016), the manufacturing firms that invested in social programs had to take a significant stage to strengthen GHRM, in which the plan of the agendas must focus on employees' safety and their health-related issue to prevent them from being showing to detrimental emissions. Apart from the reporting role, the mounting of these agendas is expected to sustainably enhance the performance of manufacturing firms.

On top of that, organizations that adopted GHRM practices had been found to meaningfully contribute to the living conditions of the workers as well as satisfying the environmental needs of the employees, which led to a positive impact on the Ec.P of the organization and employees welfare (Renwick et al. 2013). Aggarwal and Sharma (2015) mention numerous advantages or benefits of GHRM in achieving broader objectives which include developing a green employer image in order to attract green talents, enhance the brand image of an organization in the market and

act as a marketing strategy. More importantly, it will be very useful to enhance the overall quality of the organization both internally and externally as well as to improve the relationship between the company and its stakeholders—customers, vendors, shareholders, suppliers, employees, the media, and government agencies.

In the SP case, organizations need to authorize that their operation of production is en-compassed of social events that can enhance the outcome of plant actions on interior communities such as employees of the organization and exterior communities such as customers and suppliers (Pullman et al. 2009). Moreover, it is foreseeable that the adoption of social and environmental programs such as appropriate health and environmental conditions for employees and external projects directed to the community will be able to improve the SP of the company and its image as well as reduce their operational costs, (Gimenez et al. 2012). On a more important note, manufacturing organizations that addressed green issues and implemented green initiatives are recommended to integrate environmental management into HRM (Masri and Jaaron 2017). In addition, GHRM can help firms to build strong relationships with customers and suppliers (Khurshid and Darzi 2016). In general, an organization that shows concern for the environment will be regarded as a good corporate entity thus will eventually help the organizations to build their loyal customer groups and gain the necessary confidence of this group in times of difficulties (Mandip 2012).

## ***2.6 GHRM Practices and Operational Performance***

As mention before, the operational performance (OP) was described as the efficiency of the firm's operations which involves the costs of the product, quality and flexibility, development of the new product, delivery, and time-to-market the new products (Jabbour et al. 2013a,b). In relation to this, Bayo and Decerio (2002) investigated the association between OP and HRM practices in terms of effectiveness, quality and excellence, and time-based measures. The results of their study revealed that HRM practices are able to improve the firm's OP through high-commitment practices that are believed to foster employee's aptitude in gaining the best quality and time. In addition, Ahmad and Schroeder (2003) found that HRM practices have a positive impact on the firms' OP (i.e. quality of product delivery time, and flexibility to change volume). However, it was pointed out that very little attention has been paid to the impact of HRM practices on operations management and the ability to generalize the findings across different industries and countries.

On a more serious note, only a few studies partially investigated the direct association between GHRM bundle practices and OP. For instance, Jabbour et al. (2013a,b) found that human resource practices have a positive impact on environmental management which was found to improve the OP of Brazilian automotive firms. Hence, it was concluded that managers should pay further devotion to the human side of environmental management as it is believed to improve operating performance. Therefore, this further indicates that the human side of environmental management has a strong ability to improve the operational capabilities of the firms.

**Table 1** GHRM empirical studies in various countries

| Study                    | GHRM aspect  | Country   | Methodology  | Performance      | Findings   |
|--------------------------|--|---|--------------|------------------|--|
| Jabbour (2011)           | Greening of HRM practices, organizational culture, learning, and teamwork in       | Brazilian manufacturing companies with ISO 14001 certification      | Qualitative  | Firm performance | The importance of considering the alignment of the human resource practices systematically in order to put workers in control of environmental management  |
| Jabbour et al. (2013a,b) | Green team   | Brazil-Certified industrial companies with ISO 14001                | Quantitative | EP               | Green team directly influence environmental performance  |
| Tadić and Pivac (2014)   | HRM bundle practices   | All Croatian Enterprises listed on the Zagreb Stock Exchange Market | Quantitative | Ec.P             | The results confirmed positive and statistically significant correlation between HRM bundle and Ec.P   |
| Yosef et al. (2015)      | GHRM (CSR), (E-HRM) Work-life Balance (WLB), Green Policies and Extra Care Program | Multinational companies in Malaysia                                 | Qualitative  | EP and Ec.P      | The results revealed that most of the investigated companies place a very high importance on Green HRM reflecting on five concepts—Corporate Social Responsibility (CSR), Electronic HRM (E-HRM), Work-life Balance (WLB), Green Policies and Extra Care Program |

(continued)

**Table 1** (continued)

| Study                        | GHRM aspect  | Country  | Methodology  | Performance   | Findings  |
|------------------------------|--|--|--------------|---|---|
| Haddock-Millar et al. (2016) | Green employee engagement and GHRM   | Manufacturing and service organizations in United States, Sweden, UK and Germany | Qualitative  | EP  | The study identified a number of factors that explain the differences in approach including, amongst others, strategic and performance drivers and cultural dimensions, such as relationships with key stakeholders |
| Rehman et al. (2016)         | Green manufacturing(GM): Top management commitment Customers focus Technology innovation Organisational capabilities | Indian manufacturing sectors   | Quantitative | Financial and manpower performance, Operational performance, Competitive advantages | Identification, prioritisation of guiding factors, its modelling, and validation, which influence various manufacturing practices, and drastically affect organisational performance                                |
| O'Donohue and Torugsa (2016) | Proactive environmental management GHRM practices  | Indian manufacturing sectors   | Quantitative | Financial performance   | The findings reveal that GHRM positively moderates the association between proactive environmental management and financial performance   |

(continued)

**Table 1** (continued)

| Study                  | GHRM aspect  | Country  | Methodology  | Performance                                  | Findings  |
|------------------------|--|--|--------------|--|---|
| Zhan et al. (2016)     | Green and lean practice: Leadership and management Employee involvement Mindset and attitude | Chinese manufacturing sectors                                  | Quantitative | Business performance and EP                  | The findings explain that Guanxi between organisational partners improves the positive effect of green and lean practice on organisational performance  |
| Vazquez et al. (2016)  | Training, assessment, reward and teamwork Stakeholders pressures                             | Brazilian manufacturing companies with ISO 14001 certification | Quantitative | Proactive environmental management practices | The results highlight the role of GHRM in explaining corporate heterogeneity of responses to stakeholders' pressures and contribute to theory by conceptualizing Agency theory as a bridge between GHRM and stakeholders research |
| Teixeira et al. (2016) | Green training   | ISO 14001-certified firms in Brazil                            | Quantitative | Green purchasing Cooperation with customer   | The results indicated that green training is positively correlated with the adoption of green supply chain practices in green purchasing and cooperation with customers   |

(continued)

Table 1 (continued)

| Study                     | GHRM aspect  | Country  | Methodology  | Performance | Findings  |
|---------------------------|--|--|--------------|-------------|---|
| Guerci and Carollo (2016) | Job design, involvement, compensation, recruitment, selection and training | Six Italian companies  | Qualitative  | GP Ec.P SP  | The findings encompass the main characteristics of the GHRM systems of the organizations analyzed, and a list is provided of eight GHRM-related paradoxes |
| Yusliza et al. (2017)     | Green employee empowerment e-HRM   | Manufacturing and service organizations in Malaysia                          | Quantitative | GHRM        | green employee empowerment has a significant positive relationship with all dimensions of GHRM  |
| Solovida et al. (2017)    | Environmental strategy and Environmental management accounting             | Indonesia-ISO 14001 certified company listed on the Indonesia Stock Exchange | Quantitative | EP          | Environmental strategy can directly influence environmental performance through environmental management accounting                                       |

(continued)



**Table 1** (continued)

| Study                   | GHRM aspect  | Country   | Methodology  | Performance  | Findings   |
|-------------------------|--|---|--------------|--|--|
| Masri and Jaaron (2017) | Green recruitment and selection; green training and development, green performance management and appraisal, green reward and compensation, green employee empowerment and participation, and green management of organizational culture | Palestinian manufacturing companies operating in three manufacturing sectors (i.e. food, chemical and pharmaceutical sectors) | Mix method   | EP   | GHRM has a significant positive relationship with EP   |
| Kim et al. (2019)       | Green HRM  | Thailand-Hotel industry   | Quantitative | Employees' eco-friendly behaviour; Employees' organizational commitment and hotels' EP | The findings show that green human resource management enhances employees' organizational commitment, their eco-friendly behavior, and hotels' environmental performance |
| Yong et al. (2020)      | Green analysis and job description; Green recruitment; Green selection; Green training; Green performance assessment and Green rewards   | Large manufacturing firms in Malaysia   | Quantitative | EP; Ec.P and SP  | The results show that green recruitment and green training have positive effects on sustainability   |

(continued)

**Table 1** (continued)

| Study                   | GHRM aspect  | Country   | Methodology  | Performance              | Findings  |
|-------------------------|--|---|--------------|--------------------------|---|
| Mousa and Othman (2020) | Green hiring; Green training and involvement; Green performance management and compensation  | Palestine-Hospital industry   | Mix method   | EP, Ec.P and SP          | Results revealed that GHRM practices had a positive influence on sustainable performance  |
| Tahir et al. (2020)     | Green recruitment and selection; Green training and development; Green performance management; Green reward; Employees empowerment and participation in environmental programs | Pakistan-IT firms   | Quantitative | OCB-Environmental; EP    | The results indicate that the dimensions of green HRM have significant positive effects on OCB-environment and firms' EP                                |
| Jamal et al. (2021)     | Green recruitment and selection, green pay and rewards, and green employee involvement   | Different industrial sectors of Pakistan such as manufacturing, banking, education, and information technology (IT) | Quantitative | Corporate sustainability | The results provide more contextualized social, environmental, and economic implications to academics and practitioners interested in green initiatives |

Table 1 shows the previous empirical studies of GHRM conducting in different countries.

### 3 Proposed Conceptual Model

A conceptual model is recommended to be developed based on the evidence that has been identified from the previous literature in order to explore the relationship between GHRM bundle practices and EP, Ec.P, SP, and OP (see Fig. 1). In this paper, GHRM bundle practices that are comprised of green selection and recruitment, green training, green rewards, and green performance of evaluation are found to have a positive impact on organizational performance (i.e. EP, Ec.P, SP, and OP). The previous assumption is derived from the RBV theory which recommends that aspects of humanity that have a positive impact on the ability of the firms to adopt new organizational practices (i.e., GHRM bundle practices) (Barney 1991) as well as improve the performance of the firms (Barney et al. 2011).

As presented in Fig. 1, it is imperative to note that the proposed model in the present study does not consist of a complete measurement set of scales due to the constraint surrounding the entire GHRM and the sustainable performance of a single study. Hence, a conceptual framework is derived (as shown in Fig. 1) and four propositions are formulated based on the above assertions:

**P1:** There is a positive and significant relationship between GHRM bundle practices and organizational performance.

**P1a:** There is a positive and significant relationship between GHRM bundle practices and EP.

**P1b:** There is a positive and significant relationship between GHRM bundle practices and Ec.P.

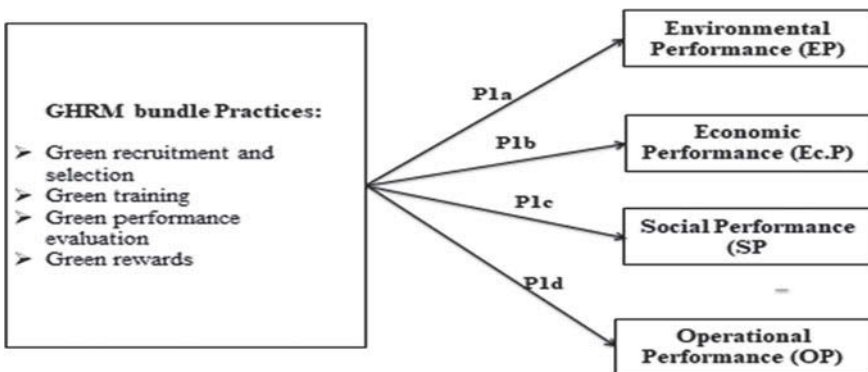


Fig. 1 The proposed conceptual model

**P1c:** There is a positive and significant relationship between GHRM bundle practices and SP.

**P1d:** There is a positive and significant relationship between GHRM bundle practices and OP.

## 4 Discussion

Indeed, GHRM and sustainable performance both are closely related to HRM. Moreover, it has been highlighted that previous studies on HRM extensively focused on practices of the individual level instead of a set of the practices, thus driving the present study to further explore GHRM practices as a bundle (Combs et al. 2006; Guerci and Carollo 2016; Longoni et al. 2016; Renwick et al. 2013). On top of that, the distribution of environmental standards and ideologies through the GHRM bundle may incubate based on environmental management on the motivation and employee's skills which will subsequently create an opportunity for the employees to contribute to the development of the environment of the organization (Cantor et al. 2012). In fact, a high number of researchers have emphasized that sustainability is an evolutionary part and it is the future of HRM (Jackson et al. 2014; Renwick et al. 2016).

More importantly, GHRM is deemed effective considering that it equips the organizations with environmentally aware, dedicated, and capable employees that will be able to support the organization to reduce its footprints carbon through the effective and efficient use of prevailing resources (Ashraf et al. 2015). Apart from that, the adoption of GHRM practices is very beneficial based on the fact that it can create greater efficacies, low cost, an atmosphere with the better engagement of the employee, improved productivity, and other tangible benefits (Ahmad 2015) that are hoped to assist the organizations to work in sustainable environment fashion (Rani and Mishra 2014). According to Pandey et al. (2016), firms that adhere to GHRM practices will be able to improve their sales and reduce costs by achieving a higher volume of sales. Furthermore, the companies that provided social responsibilities had been discovered to gain tangible benefits that are probably to make performance toward strengthening for the firms which include satisfaction level of employees and their customers, recruitment of excellent staff, and innovation (Wagner 2013). However, there were no studies that examined the direct association between GHRM bundle practices and a firm's OP.

Regarding this matter, the purpose of this paper was to explore the relationships between organizational performance and, GHRM practices bundle particularly from the environmental, economic, social, and operational points of view. The conceptual model adopted in this study is mainly grounded within RBV which was developed by Barney (1991), whereby it acknowledges that relying on the resources alone may not bring any benefit. However, the advantage of the competitor may be consequential from the collaboration mechanism of numerous resources (Barney 2001; Hohenstein et al. 2014). On top of that, these features were also found in GHRM

which is considered as a vital approach in disseminating environmental standards and ideologies as well as producing talented and committed employees through the implementation of environmental ideologies within the firm in order to improve its performance (Chiappetta et al. 2017; Jackson and Seo 2010; Lengnick-Hall et al. 2013). Concisely, this study revealed that all hypotheses proposed in the conceptual model are well supported.

The GHRM practices as “a bundle” have been proven to have a significant contribution to the sustainable performance of manufacturing organizations. Furthermore, the relationship between GHRM bundle practices and OP is also significant considering that more strength is added into the model. Finally, GHRM bundle practices have a high chance to improve worth to the green development of the firm as well as being engaged in an essential tool that is capable of employee’s motivation, inspiring, and employees stimulating to impose green practices for a greener system that is believed to enhance the sustainability performance of manufacturing firm. In addition, the absence of the framework in the study partially describes the wide range of definition conceptualizations and terms that were found in the literature of practitioners and researchers. Hence, the association among the GHRM bundle practices firm performance is crucial to gain a competitive advantage. In summary, it can be concluded that the success of GHRM practices is contingent on the adoption of GHRM practices as bundles instead of relying on individual practices.

## 5 Conclusion and Recommendations for Future Research

It is concluded that rapidly changing environments strongly demand green practices in all aspects of organizations but if human resources are being built on green practices it ultimately affects all the segments of the organization. This study identifies that green human resources practices have positive and significant effects on all elements of overall organizational performance that contain both sustainable performance (i.e. Ec.P, EP, and SP) and OP. Furthermore, it has been found that the most influencing GHRM practices are green recruitment and selection, green performance evaluation, green training, and a green reward system. Thus, it can be said that organizational practices must be associated with environmental practices by adopting green human resources practices such as green recruitment and selection, green training, green performance evaluation, and green reward system to compete globally. This study can contribute to the conceptualisation of GHRM bundle practices, involving green recruitment and selection, green training, green performance evaluation, and a green reward system and provide the managers the ability to train themselves regarding the GHRM bundle practices with its implication. On the concluding note, we would like to add that HRM is the major role player in implementing GHRM practices and policies. Apart from this, they have a crucial role to play in recruitment of new employees who are more responsible toward green business practices thus, indirectly saving the Earth.

Like any other study, this study has a few limitations. Firstly, since this study did not adopt a research design that allows us to explore the relationships between GHRM bundle practices and firm performance (EP, Ec.P, SP and OP). Future research should try to validate the model empirically in country-specific and comparative research designs. Next, the conceptual GHRM bundle model could be compared with models for other transition countries (e.g. Asia) and other regional GHRM models in Europe. Finally, a sound theoretical background is lacking in most of the highly cited GHRM articles, which should be taken into account in future research (Shoab et al. 2021). Such research promises to help organizations reduce environmental degradation and reap the benefits of environmental protection and renewal, further contributing to the benefit of all organizational stakeholders in the future.

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# Mindfulness Research: A Bibliometric Analysis



**Muhammad Shoaib Saleem, Ahmad Shahrul Nizam Isha,  
Yuzana Mohd Yusop, Maheen Iqbal Awan,  
and Gehad Mohammed Ahmed Naji**

**Abstract** Bibliometric analysis technique was used to ascertain the prominent authors, authors' cooperation, prominent research journals, contributing countries, and organizations to see the progress made in mindfulness research. Web of Science was used to identify published works for the last 16 years (2005 to 2020) and data were analyzed through VOSviewer software. It was found that the concept of Mindfulness is mainly associated with high-reliability organizations (HROs), where accidents are inevitable. Much research is needed for mindfulness constructs in other industrial settings, as this research domain is still new and needs explorations. Its application in other domains of social sciences is also limited. Few new industrial sectors have been proposed to be included in Perrow's (1948) model. Geographical inequality was observed in the publication. Slight movement from high-reliability organizations (HROs) to other less hazardous organizations was also observed for mindfulness research. Our research is unique as bibliometric analysis on mindfulness constructs is almost non-existent in the present literature. Our study contributed to the present knowledge of the body by providing a holistic view of mindfulness research for over 16 years. We also highlighted the geographical inequality for research and pointed out that more collaboration for mindfulness constructs is needed. Our research also unraveled other industries which are somewhat associated with mindfulness constructs and need further exploration. Our findings would be helpful for future research to better operationalize and relate mindfulness constructs in other fields of interest.

**Keywords** Bibliometric analysis · Mindful organizing · High-reliability organizations (HROs) · Mindful organizing · Collective mindfulness · Safety organizing · Organizational mindfulness

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M. S. Saleem (✉) · A. S. N. Isha · M. I. Awan · G. M. A. Naji  
Department of Management and Humanities, Universiti Teknologi Petronas, Seri Iskandar,  
Malaysia  
e-mail: [muhammad\\_20000169@utp.edu.my](mailto:muhammad_20000169@utp.edu.my)

Y. M. Yusop  
Faculty of Medicine, Universiti Sultan Zainal Abidin, Kuala Terengganu, Malaysia  
e-mail: [yuzanayusop@unisza.edu.my](mailto:yuzanayusop@unisza.edu.my)

# 1 Introduction

Mindfulness is a collective phenomenon and a term that is often interchangeably used with ‘Mindful Organizing’, ‘Collective Mindfulness’, ‘Organizational Mindfulness’ and ‘Safety Organizing’. Mindfulness is relatively a new concept and an emerging one in academic literature. It was first conceptualized by Weick 1999 to articulate the promising characteristic of high-reliability organizations e.g. Nuclear Power Plant, Nuclear Submarines, Aircraft Carriers, Air Traffic Management, and the Aviation Industry. Mindful organizing facilitates high-reliability organizations (HROs) and enables their continuous learning and adaption to the situations to safeguard from any catastrophe ‘high hazard’ contexts (Shrivastava et al. Sep. 2009). Mindfulness entails five principle processes i.e. Preoccupation with failure (detection of cues and thinking or possibility to go wrong), Reluctance to Simplify (ability to ask, assess and question the given assumption and orders), Sensitivity to Operations (situational awareness of the front end employees and detection of an anomaly at an early stage), Commitment to Resilience (capability to fight back from the adverse situation and normalize the overall environment), Deference to Expertise (delegation of authority to those who are expert for the problem at hand) (Weick 1999; Vogus and Sutcliffe 2012)–(Weick and Sutcliffe 2007). Incidents like Cerro Grande Wildland Fire, Bhopal, Chernobyl, and Exxon Valdez gave much pressure on the world of academia to work upon high-hazard industries afterward. There is a growing trend towards the utilization of mindfulness in other industries as well globally because occupational incidents are on the rise. Although technological advancements are being made, because of the increasing incidents and enhanced complexity, the mindfulness phenomenon has resulted in increased publications, which also allows assessing the overall research state.

The prime motive of this research is to highlight the importance of the high-reliability phenomenon not only for safety-centric/cautious organizations but for other less hazardous organizations and businesses, as to how they can utilize mindfulness as a holistic process and how its processes can be helpful for their operations too. The high-reliability phenomenon is primarily comprised of two elements, one coupling (loose or tight) and interaction (linear or complex) (Perrow 1984), which means every organization, be it production-oriented or service-oriented, must operate through these two conditions. There must be coupling in between their operational activities (strict time dependence/strict resource dependence) as well as the nature of interactions be it linear or complex (the amount of delay or error a system can accommodate). Cummings & Perrow, (1984) presented a table containing four different quadrants representing two fundamental elements of high-reliability organization i.e. coupling (loose or tight) and interaction (linear or complex) and populated all quadrants with a different type of organizations concerning their coupling and nature of the interaction. In the second quadrant, all of such organizations are mentioned which are considered to be having tightly coupled activities and complex nature of interaction, where this notion of high-reliability was also endorsed by Weick and Sutcliffe 2007 as, if any organization is having tightly coupled and interactively

complex system, it needs to work on mindfulness without any further delay. Based on these four quadrants, through this analysis, we would be able to see which industries are researched concerning mindfulness and will try to relate these four quadrants as per our comprehension. This will allow us to see whether mindfulness is still limited to the second quadrant of Perrow's Chart or has moved in other quadrants to become a more central construct.

Many analysis techniques enable researchers to have a microscopic, macroscopic, or even holistic understanding of certain phenomena out of the plethora of available academic literature. Often, it has been observed that the intense amount of literature available for a specific discipline of research or even a single topic is quite a challenge or hurdle for researchers to have a sound and well-structured understanding of the pertinent information and background (Rodrigues et al. Mar. 2014; Zhou et al. Feb. 2015). To achieve this huge, complex, and time-consuming task of information analysis, some of the available quantitative information about the publication's historical overview, its main elements/characteristics, contributing authors, and results in diverse fields can be schemed (Jia et al. Jun. 2014; Li and Hale Feb. 2016). With the help of the Bibliometric analysis technique, researchers can observe the emerging and past research paradigms in different publication bodies, organizations, and territories globally to comprehend the relatedness in between ideas, authors, and organizations (Li and Zhao Jan. 2015).

Through the technique of Bibliometric, key researchers, their prominent work, and the most relevant journal with global distribution and involved institutions can be identified. Researchers who are looking to opt for any field can get benefit from that analysis, as they provide a diversified view of relevant journals publishing on a certain topic as well as this information can also be used to pinpoint or highlight the prevailing or even emerging themes or trends in multidiscipline research domains. According to (Wang et al. Dec. 2014), the most recent and up-to-date advancement alongside contemporary directions in a particular research field can be observed through Bibliometric analysis. This analysis technique also helps researchers to highlight if there persist any gap in the prevailing research. Moreover, through a bibliometric approach, the decision-making process can be facilitated to secure research grants and initiatives.

Further, results from this analysis would provide us with the insights of mindfulness research through (1) trends on publication and its growth, (2) key journal publishing regarding mindfulness research, (3) authors and their publication network (4) geographical/territorial and organizational involvement in publications, (5) article cited analysis, (6) citing and co-citation analysis, (7) category of subject/area and (8) key terms analysis (Fig. 1).

It is worthwhile to mention here that the mindfulness construct is mainly comprised of "individual mindfulness", "collective mindfulness", "mindful infrastructure", "organizational mindfulness" and "mindful organizing". From prior literature, out of all these categories of mindfulness construct, bibliometric analysis assessing the citation pattern and other elements is evidenced only through two studies on "individual mindfulness" (Chiesa et al. Aug. 2017; Baminiwatta and Solangaarachchi Jul. 2021), hence creating a scarcity of the bibliometric evidence

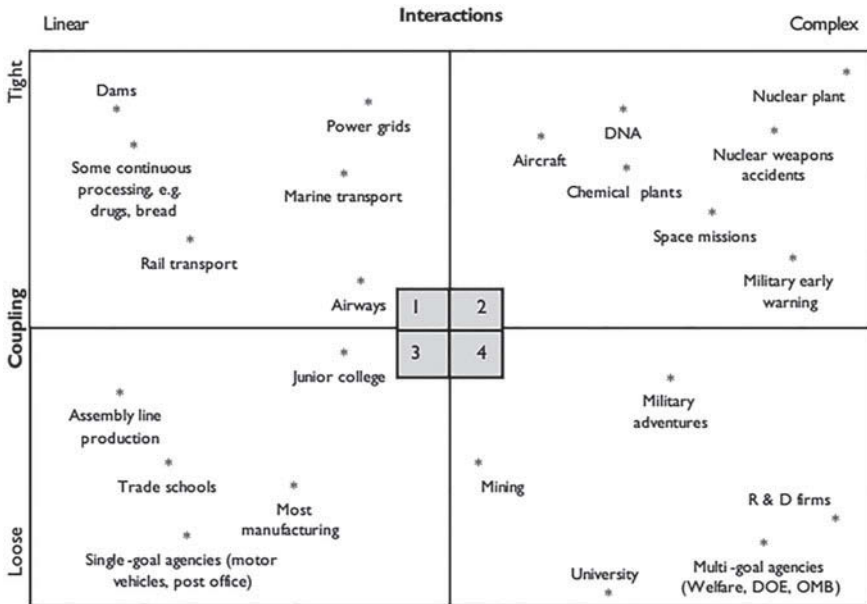


Fig. 1 Interaction/coupling chart

for mindfulness constructs. Further, in contrast with other correlates of mindfulness constructs, individual mindfulness is different. Individual mindfulness is routed to Buddhist contemplative practices that are practiced way back 25 centuries (Baminiwatta and Solangaarachchi Jul. 2021). An Individual’s state of being mindful is more related to situational awareness and being present in the current moment, rather than being stuck in past or worrying about the future (Weick and Putnam Sep. 2006). This individual mindfulness perspective is commonly known as the eastern perspective that is mainly derived from the teaching of Buddha (Vogus and Sutcliffe 2012). Individual mindfulness is also different from the other forms of mindfulness, as it is mostly related to self-meditation practices (Vogus and Sutcliffe 2012). On the other side of mindfulness constructs like collective mindfulness, mindful infrastructure, organizational mindfulness, and mindful organizing, all come under the common realm. They differ from individual mindfulness as they deal with or operates over the fabric of collective efforts and collective sensemaking (Oliver et al. Dec. 2019). And due to this crucial difference, the application of such team level constructs can be observed from safety-sensitive organizations to the healthcare sector, aviation, military, and so on (Weick 1999; Vogus and Iacobucci Aug. 2016)–(Vogus and Sutcliffe 2007). Keeping aforesaid in view, there is no single bibliometric research that undertakes all of the forms of mindfulness construct in one research, thus our research is unique and intriguing.



## 2 Data and Methods

The prime source for data collection was the Web of science for this research, where the reason behind opting for the Web of science is being effective, widespread and most widely acknowledge data source worldwide, be it scientific or non-scientific research work (Yang et al. Jul. 2013). To produce the pertinent results for our research, from Web of Science, the terms ‘Mindful Organizing’, ‘Collective Mindfulness’, ‘Organizational Mindfulness’ and ‘Safety Organizing’ were mentioned in the search bar separately. In addition to this, a brief search was also made to assess the titles, abstracts, and keywords of the produced results. To pinpoint our result, quotation marks were used before and after each term, as this gave us more precise and concrete results (Liu et al. Sep. 2013). The period allowed by Web of Science was from 2005 to 2020, because of the availability of the complete information for each published work. There is a continual update of data for each publication in the Web of science core database, and because of that, if the same terms which we used in our research are mentioned in later times are expected to produce different results (Liu et al. Sep. 2013).

All in all, a total of 122 publications were identified through the Web of Science database mentioning aforesaid dimensions of mindfulness, and all of them were included in the analysis. Out of all those publications, the majority of publications were research articles. Web of Science provides comprehensive information of each publication in detail i.e. year of publication, details of authors and co-authors, complete tile, abstracts, publishing journal, research category/domain, and all relevant references. Complete data of 122 publications extracted from Web of Science were analyzed in Microsoft excel and VOSviewer. Finally, to conduct the visual analysis of the association between authors, countries, citation, and co-citation, the free available software available at (<https://www.vosviewer.com>) namely VOSviewer was used by Eck and Waltman Aug. (2010). Through VOSviewer software, mapping analysis was conducted in which, each topic is viewed from a two-dimensional map to see the relatedness or similarity of these topic items to the maximum possible accuracy. Through this software, cluster analysis was also conducted which provided groups of the research topic with distinct colors (Eck and Waltman Aug. 2010). Each visual image is explained in depth in the result section. To understand the visualizations following understanding is required: (1) size of circle and font reflects the total number of occurrences, (2) color of the circle depicts different research clusters and (3) distance in between circles represents the coherence and relatedness between them, whereas the movement of content of visuals on the x-axis and y-axis does not have significance (Khalil and Gotway Crawford 2015; Rizzi et al. Feb. 2014).

### 3 Results and Discussion

#### 3.1 Publication and Output Growth Trend

One of the expedient way to see the trend in scientific research and its discipline is to see the amount of peer-reviewed publication throughout the period. It is evident to see in Fig. 2 the increasing trend of publication on mindfulness. There was merely two publication in the year 2006 as per Web of Science database. Until 2011, the publication on mindfulness was limited to few numbers (less than 10) and started rising, which can be observed in Fig. 2. From the year 2016 onwards, an increase in the number of publications can be observed ever. The peak of publications in the year 2020 ( $n = 30$ ) was observed and in the future much increase is expected. The initial slow movement in the publication of mindfulness is questionable. One of the possible explanations for a low number of publications could be the understanding of this variable and its nature as well as the fragility of the mindfulness itself as it is difficult to create and main in actual settings (Martínez-Córcoles and Vogus Apr. 2020). The mindfulness phenomenon is mostly associated with high-reliability organizations (HRO) which gives the impression of non-applicability of HRO's principle on other industries also. Secondly, this variable is a team-level construct that is displayed, practiced, and observed where teams are working in a complex technological environment and their task are tightly coupled with each other. Regarding growth, decline, and maturity in scientific publications, Price's law enables us to understand these different phases of the research (Price & Tukey, 1963). As stated by this law, the progress of the research domain can be elaborated in four different phases, (1) a pioneering phase, in which a group of the researcher(s) or individual initiates to publish on certainly new field, (2) exponential growth phase, where the concentration of researchers to work upon such ideas grows to a higher number to explore more aspects of the subject, (3) consolidation, where learning is enforced and practically is observed, (4) decline in the interest of field by researchers, where

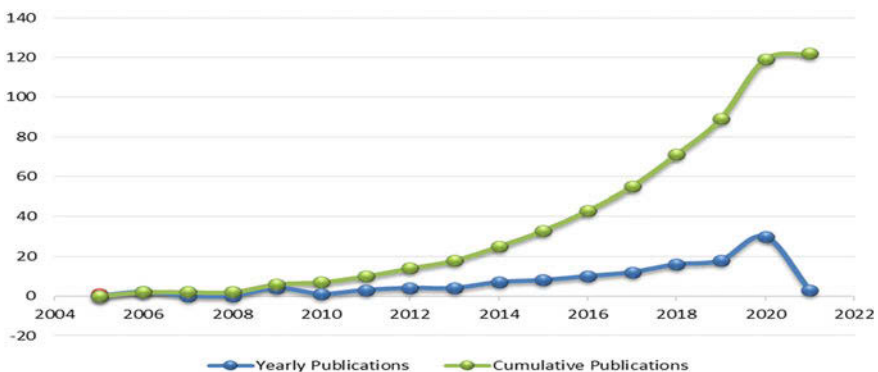


Fig. 2 Number of publications on mindfulness research

saturation on any field is achieved (Dabi et al. Nov. 2016). Mindfulness is relatively a new concept and is emerging not only in occupational safety but in other fields also, where the lack of empirical evidence is another challenge (Martínez-Córcoles and Vogus Apr. 2020).

Just by looking at the increasing trend in yearly publication as well as cumulative score in Fig. 2, it can be established that the significance of mindfulness research for occupational safety is on an increasing trend. In connection with the cumulative publications related to safety in Fig. 2, there is a much-unhurried trend. We can see the huge number of publications in a different safety research journal in one of the analyses conducted by Li and Hale Feb. (2016), from 1991 (less than 2000 publications) to 2013 (more than 13,000 publications), which shows the amount of limited work being carried out on mindfulness research, and how much is still needed ahead. Keeping view the comparison between cumulative researches on mindfulness in Fig. 2 and the overall publications on safety by Li and Hale Feb. (2016), it can be well established that there is a fractional amount of work carried out on mindfulness, in contrast to overall safety research domain and much steeper growth is needed to aid the occupational safety research domain.

### 3.2 Prominent Authors and Their Cooperation

In any field of science, the impact of scholarly work is it is qualitative or quantitative is measured or gauged through its citation and acknowledgment by other authors. A total of 122 publications were included in this study through the Web of Science core database. Those 122 publications were written by 254 different authors. Out of all publications, it was noticed that the maximum number of authors 74% (n = 188/254) were only mentioned or cited in one publication on mindfulness, 7.5% (n = 19/254) of the authors were cited for 51–100 times publications, and 4% (n = 9/254) were credited for about 100 to 200 times, depicted in Fig. 3. Interestingly, only 1%

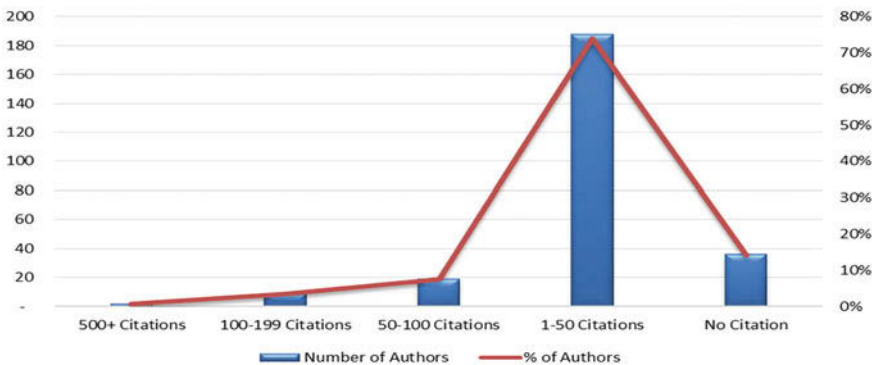


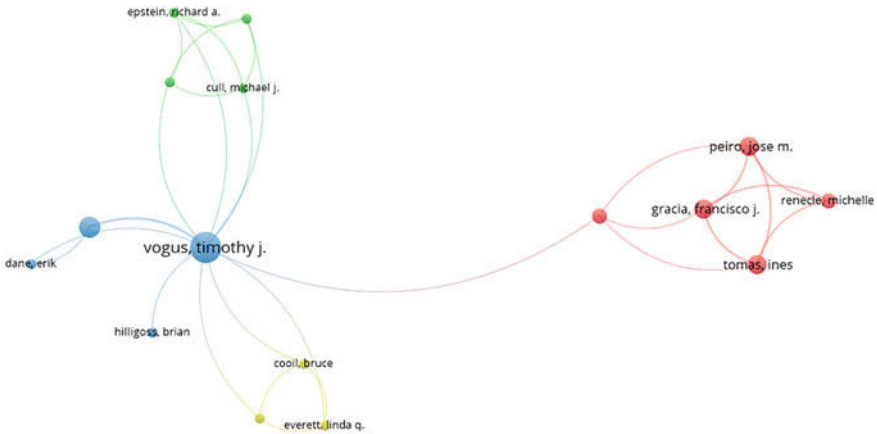
Fig. 3 Distribution of citations concerning their percentage

**Table 1** Top-most productive authors publishing on mindful research

| Author name           | Country     | # of publications as per web of science | # of citation as per web of science | Average citations per publication | H-Index as per web of science |
|-----------------------|-------------|---|-------------------------------------|-----------------------------------|-------------------------------|
| Timothy J. Vogus      | USA         | 8                                       | 598                                 | 75                                | 21 H-index                    |
| Nelson Oly Ndubisi    | Qatar       | 5                                       | 16                                  | 3                                 | 20 H-index                    |
| Rene Schwendimann     | Switzerland | 5                                       | 161                                 | 32                                | 24 H-index                    |
| Kathleen M. Sutcliffe | USA         | 4                                       | 555                                 | 139                               | 38 H-index                    |
| Francisco J. Gracia   | Spain       | 3                                       | 5                                   | 2                                 | 19 H-index                    |
| Jose M. Peiro         | Spain       | 3                                       | 5                                   | 2                                 | 02 H-index                    |
| Karl E. Weick         | USA         | 2                                       | 425                                 | 213                               | 46 H-index                    |

( $n = 2/254$ ) of the authors got cited 500+ times which shows clear saturation of citation associated with a small group of authors and individual researchers whose work was more productive or influential in the field of mindfulness which is in harmony with other research fields (Liu et al. Sep. 2012). Moreover, it is worthwhile to notice here that 14% ( $n = 36/254$ ) of the authors couldn't get any citation for their work which is a big chunk. The possible reason for low citation would be the date of publication, as the more recent research is, the less the citation it may have. It requires time to get recognition for scholarly work from others. The most influential authors are shown in Table 1, in which the ranking is made according to several publications held by authors irrespective of their authorship order. Out of all, Timothy Vogus stands tall amongst others, being the most productive author on mindfulness with 08 publications, followed by Nelson Oly Ndubisi, Rene Schwendimann with 05 publications each, Kathleen M. Sutcliffe with 04 publications. Later, Francisco J. Gracia, Jose M. Peiro, and Karl E. Weick are having two publications by each author (this data is subject to the date as search at later dates may generate different information).

Further analysis suggested that on average 2 authors worked upon individual publications. Out of all 122 publications, 13% ( $n = 16/122$ ) had a single author, 37% ( $n = 45/122$ ) had two authors, 27% ( $n = 33/122$ ) had three authors, 16% ( $n = 19/122$ ) had four authors, 4% ( $n = 5/122$ ) had five authors, 2% ( $n = 3/122$ ) had six authors and 1% ( $n = 1/122$ ) had eight authors. From the aforementioned analysis, it is justified to state that there is a moderate amount of collaborative research for mindfulness, as 87% ( $n = 106/122$ ) of the selected papers have multiple authors. This increased cooperation between authors exhibits the close association between different authors globally and can provide better collaboration opportunities in the future (Wang et al. Dec. 2014).



**Fig. 4** Authors' cooperation network in mindfulness research

### 3.3 *The Cooperation Pattern*

The co-authorship of authors publishing their work on mindfulness research was analyzed with VOSviewer software. Authors were chosen for the network analysis who have published at least one publication on mindfulness. The finding of the authors' cooperation network can be seen in Fig. 4. Whereas, the size of the circle shows the magnitude or amount of publication by a single author and the lines between authors exhibit the existence of co-authorship/cooperation. Different colors show the distinct cooperation cluster, where researchers are relatively working on the same or homogenous ideas. In Fig. 4, four different colors of clusters can be with different circle sizes and colors. The size of the circle represents the amount of publication and the line between authors represents their research cooperation. In this network, prominent authors like Timothy Vogus, Kathleen M. Sutcliffe, and Martinez-corcoles can be observed having a network with other clusters.

### 3.4 *Journals Publishing on Mindfulness*

From the analysis, it was found that a total of 122 publications were published in 78 different journals. This diversity in publication bodies depicts the variability and the presence of multidisciplinary application of mindfulness research. Of the 78 journals, 55 journals (71%) published only one manuscript, 13 journals (17%) published at least two articles, (10%) published at least three articles, and one journal (1%) published 05 articles. Safety Science is the only journal publishing most on mindfulness research i.e. 12 documents (10%) out of a total of 122 publications. Fig. 5 depicts the journals publishing on mindful research, which shows variation



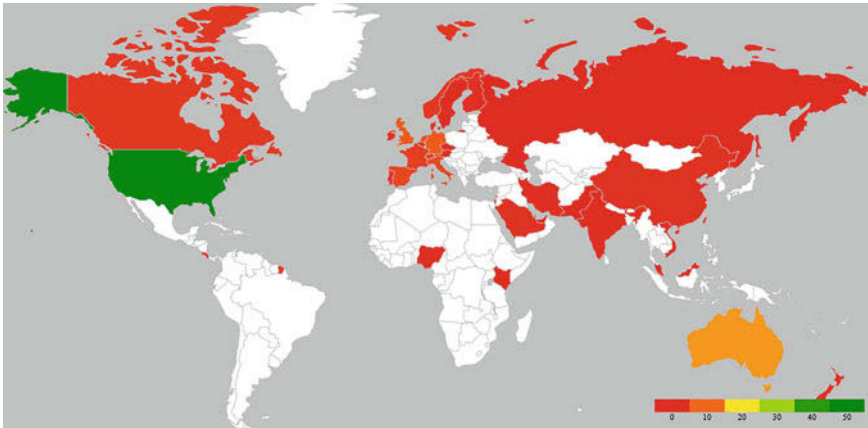
**Fig. 5** Journals publishing on mindfulness research

in the publishing bodies ranging from pure management-related journals to some scientific journals as well.

### ***3.5 Countries and Territories Publishing on Mindfulness Research***

Mindfulness research was carried out in 37 different countries. Out of 37 countries, 18 are located in Europe, 12 countries in Asia, 3 countries in North America, 02 countries in Oceania, and 02 countries in Africa. Out of all countries, America (USA) is the only country that has produced about 34% of the research with the contribution in 42 publications irrespective of the authorship priority. The second-largest contributor is Australia with 13 publications with 11% toward overall contribution. The global spread of the overall mindfulness research is depicted in Fig. 6 for better comprehension of the readers.

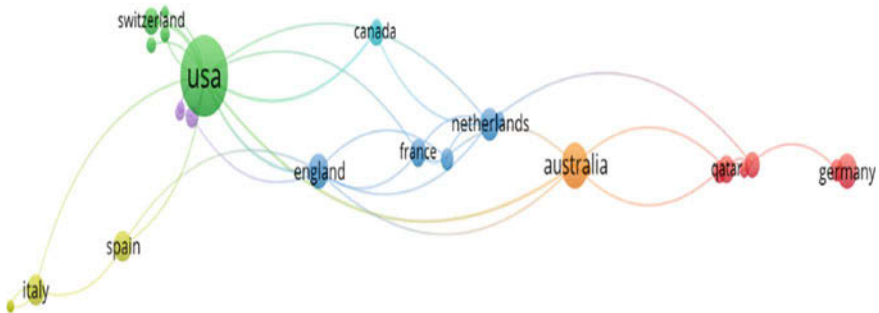
It can be very firmly established from the above figures that, those countries which are more economically developed seem to have more scientific and academic researches and in our case, America and some European countries who are also a member of G-7 group, can be seen contributing clearly towards the mindfulness research domain. The domination of developed countries on publishing shows the relatedness between higher scientific and academic activities and publication output which also put these countries at the forefront of the research field. By looking at the total contributions made by each continent in Fig. 6, a general inequality can be observed, which shows the need for mindfulness research to be conducted in other countries and continents as well, as its association with certain parts of the globe may limit the usability and reliability of the research domain. Another aspect for the usability and generalizability of the research domain is to observe the collaboration between different authors i.e. co-authorship in different countries.



**Fig. 6** Global distribution of mindfulness research (irrespective of authorship ranking)

To cater to this aspect, VOSviewer was used to analyze the cooperation network globally. Countries having a minimum of one publication were added to see the maximum possible collaborations. Through VOSviewer, territories that are not connected with other countries in the cooperation network can be excluded to see the most active cooperation network. The result of the analysis is depicted in Fig.7. The amount of published work is represented through the size of the circle and the cooperation's network strength/magnitude is reflected via the thickness of a line.

From the above, three different clusters among the USA, Australia, and some European countries emerged. The same color represents the research cluster having an associated nature of research. In harmony with other research domains, countries involved in collaborative research are more geographically correlated and they hold the position which is centered around the most productive countries in the purview of publication output (Zheng et al. Oct. 2016). To see the future value and usability of mindfulness research, the above figure provides an encouraging view for



**Fig. 7** Global cooperation network on mindfulness research

future researchers to initiate further global collaborations to exploit the potentials of mindfulness research.

### ***3.6 Organizations publishing on Mindfulness Research***

According to the data derived from Web of Science, 122 publications were possible through the participation of 171 different research organizations, whereas in such publications, one author is possible to be associated with more than one institution, or the manuscript can be made with the conglomerated efforts of different authors from different institutions. To be more precise, 83% of organizations ( $n = 142$ ) only participated in single publication, 11% ( $n = 19$ ) contributed in 2 publications, 3% ( $n = 5$ ) participated in 03 publications, 2% ( $n = 3$ ) participated in 05 publications and only 1.2% ( $n = 13$ ) organizations participated in 6–7 publications respectively. The USA is the leading country with most institutions working on the same. The squared and justified application of mindfulness research can provide more sound results for both industry and academia.

### ***3.7 Cited Analysis***

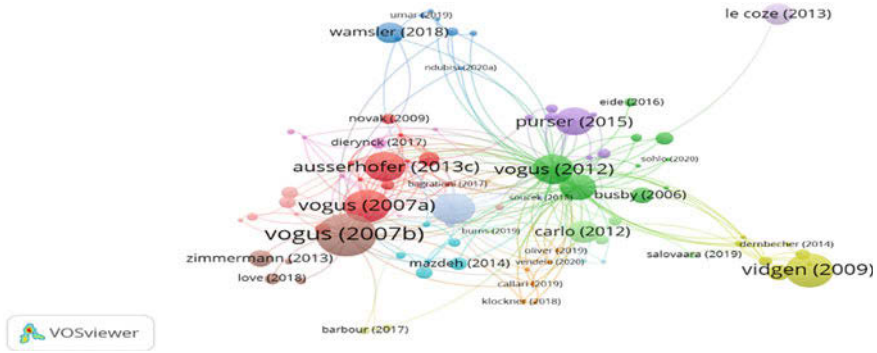
Citation is the process through which knowledge inflow and outflow can be measure against a specific domain or any published scholarly work in the field of science. It consists of two main behavior inputs i.e. (the amount of reference being used by research in particular research) and it is also called ‘citing analysis’, as well as the output of knowledge i.e. acknowledgment or publication by other authors (manuscript is used as a reference in other publication as reference), also known as ‘cited analysis’ (Li and Hale Apr. 2015). First, we will be addressing the aspect of cited analysis for mindfulness research.

Web of Science was used to ascertain the time of work related to mindfulness was cited in other related studies. All in all, other studies 1994 times cited mindfulness-related constructs with an average citation of 16.34 ( $n = 1994/122$ ) per publication. It was not able to see that 15% ( $n = 18/122$ ) publications got 0 citations (at the time of data extraction) which is a notable portion of the total 122 publications. To see the in-depth picture of the situation is was realized that 55% of the publications ( $n = 67/122$ ) got at least one citation, 20% ( $n = 25/122$ ) got 10–50 citations per document, 6% of publications ( $n = 7/122$ ) got 51–100 times citations and 3% of the publications ( $n = 4/122$ ) got 101–200 times citation. Lastly, there was only one publication that solely secured 392 citations which is 0.8% ( $n = 1/122$ ) of the total citation, showing the impact and prominence of that research document in the field of mindfulness. Some of the highly cited work on mindfulness research can be seen in Table 2 for more understanding.



**Table 2** Top 10 most frequently cited publications on Mindfulness Research

| Title of research   | Authors   | Year | Publishing journal   | Total citations |
|---|---|------|--|-----------------|
| Mindfulness and the quality of organizational attention   | Weick, Karl E.; Sutcliffe, Kathleen A                       | 2006 | Organization science   | 392             |
| Coevolving systems and the organization of agile software development   | Vidgen, Richard; Wang, Xiaofeng                             | 2009 | Information systems research   | 136             |
| Mindfulness in organizations: a cross-level review  | Sutcliffe, Kathleen M.; Vogus, Timothy J.; Dane, Erik       | 2016 | Annual review of organizational psychology and organizational behavior, vol. 3 | 114             |
| Organizational mindfulness and mindful organizing: a reconciliation and path forward  | Vogus, Timothy J.; Sutcliffe, Kathleen M                    | 2012 | Academy of management learning and education                                   | 102             |
| Green transformational leadership and green performance: the mediation effects of green mindfulness and green self-efficacy | Vogus, Timothy J.; Sutcliffe, Kathleen M                    | 2012 | Academy of management learning and education                                   | 102             |
| Knowledge management reliability and its impact on organizational performance an empirical study                            | Purser, Ronald E.; Milillo, Joseph                          | 2015 | Journal of management inquiry  | 92              |
| Validation of the Italian version of the mindfulness organizing scale (MOS) in organizational contexts                      | Ray, Joshua L.; Baker, Lakami T.; Plowman, Donde Ashmos     | 2011 | Academy of management learning and education                                   | 79              |
| Dialectics of collective minding: contradictory appropriations of information technology in a high-risk project             | Carlo, Jessica Luo; Lyytinen, Kalle; Boland, Richard J., Jr | 2012 | MIS quarterly  | 60              |
| Organizing practices of reflection: a practice-based study  | Keevers, Lynne; Treleaven, Lesley                           | 2011 | Management learning  | 58              |
| The assimilation of enterprise information system: an interpretation systems perspective                                    | Plambeck, Nils; Weber, Klaus                                | 2010 | Strategic management journal   | 56              |



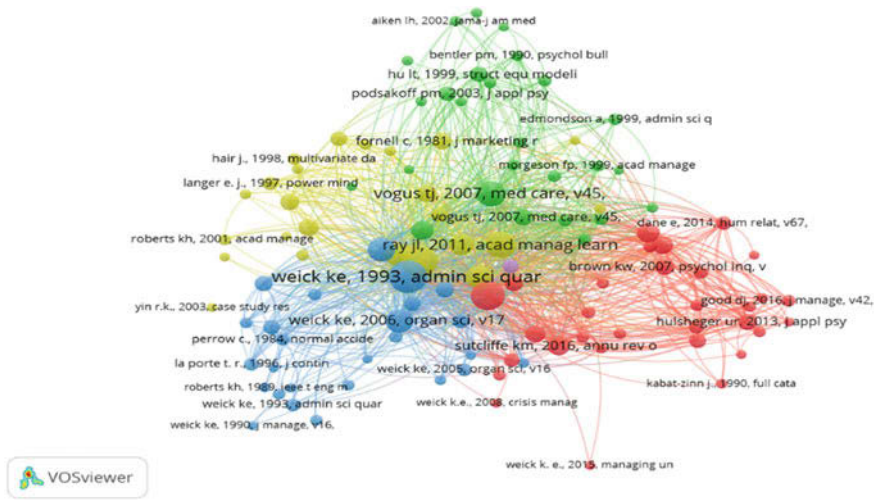
**Fig. 8** Cited analysis of mindfulness research

Pertinent to this, few authors like (Smith 2007; Ugolini et al. 2014) stated that the amount of citation a certain publication shows its influence irrespective of its reputation. In harmony with this, some researchers (Chiu and Ho Oct. 2007; Walter et al. Mar. 2003) are of the view that the quality and content of published work can't be measured through its citation score, as it's not the right measure to see the quality aspect of the publications, but its visibility only. Another way to increase the citation of the manuscript is to publish in open access journals to have more audience accessing the published work.

From the above table, it is evident to see the most citation secured by the research paper "Mindfulness and the quality of organizational attention" written by Weick and Sutcliffe (2006). This paper has been cited 392 times with the annual average citation of 25 ( $n = 392/16$  Years), which also makes this paper the most cited paper on mindfulness annually. Overall citation analysis conducted by VOSviewer can also be seen in Fig. 8, in which the size of the circle shows the amount of citation attained by the author and the line show relation between other related publications. It can also be observed through Table 2 that the most cited authors are from the USA which also gives the leads of the first author, whereas journals from the domain of information sciences, health care, and organizational behavior are publishing on mindful constructs. It is also important to see the relationship between the time that has been passed for certain publications and its citation score, and it is obvious to have more citations for earlier published work.

### 3.8 Citing and Co-citation Analysis

Through citing analysis we can get the number of overall references used in 128 publications on mindfulness research. All in all 5,487 references were used by 122 published works. The most utilized reference was also ascertained via the same analysis technique, and it was found that only 03 publications i.e. (Weick 1999;



**Fig. 9** Co-citation analysis of mindfulness research

Vogus and Sutcliffe 2012; Weick and Sutcliffe 2007, 2006)–(Naji et al. 2020a) were identified as the most frequently used references (with the minimum occurrence of 05 times in the bibliography/reference section of all 122 publications). We can identify the relationship and interaction between different publications through citing analysis and a holistic view of the citing behavior of authors can be apprehended. According to Li and Hale (2015), the magnitude of citing in between two publications reflects the similarity and association between them. We applied VOSviewer to prepare the co-citation map and its analysis. The criteria for inclusion of publication in the co-citation analysis was the minimum occurrence as a reference for at least 05 times in all 122 publications. Out of 5,487 references, 108 references met this criterion. The Result of the Co-citation analysis is shown in Fig. 9.

Figure 9 represents the co-citation analysis of mindfulness research. There are circles associated with a total of 122 works on mindfulness. To elaborate Fig. 9 has three main aspects to look at (1) size, (2) distance from other circles, and color of the circle (3). Circles that are bigger in size show more citation of that work and the contrary is the case with smaller size circles. Another aspect is the distance between circles, which represents the relationship or similarity of the work. The more the circles are distant, the more the possibility of difference persists, and contrary to this the minimum distance shows the relationship of the study. Whereas, the color of circles represents the similarity of the research topic. Through the output of co-citation analysis, we can see the emergence of four distinct clusters of mindful research amalgamated together; (1) a Red cluster at the right side, (2) a Blue cluster at the left side, (3) a Yellow cluster at the top left right side and (4) green cluster at the center of Fig. 9. Based on the assessment of individual publications and their titles in two clusters, each cluster can be allotted with a different label. The red cluster represents the field of health care and training related research, Green

Cluster accommodated research related to psychological health and education, Blue cluster accommodated researches related to HROs, Aviation, firefighting, collective sense-making, etc., yellow cluster represents researches on organizational learning, entrepreneurship psychological health, and software science and lastly, purple mental cluster accommodates research on pediatric care. Both blue and green clusters are also coalesced to some extent, as there exists some correlation. In both clusters, most of the research work is theoretical or qualitative, whereas reported by recent literature, quantitative studies on mindfulness are limited in number or confined to some industries only (Gracia et al. Mar. 2020)–(Langove and Isha 2017).

### ***3.9 Research Domain and Categories***

Web of science possesses at least one subject category of each publication from the very first date and Web of science contains 250+ subject categories to accommodate each research. This information is usually provided through the publishing journal. In total, 16 different subject categories and domains were found associated with 122 publications at the time of research, which shows the variability and versatility of mindfulness research. Out of 16 categories, Business Management 20 publications, Communication 4 publications, Computer sciences 5 publications, Economics 3 publications, Education research 1 publications, Engineering industrial 8 publications, Environmental sciences 2 publications, Ergonomics 5 publications, Health care services 33 publications, Industrial relations labor 5 publications, Information science library science 7 publications, Medicine 3 publications, Psychology 11 publications, Public environmental occupational health 9 publications, Social sciences 4 publications and transportation 02 publications. Although it is not possible to discuss each research work in its detail, after individual assessment of each publication, it is clear that in most influencing subject categories i.e. Management and Operations Research much of the work is associated with occupational safety, its improvement, and performance. Secondly, much of the relationship is also discussed between high-reliability phenomenon and performance in general as well as safety performance.

### ***3.10 Term(S) Analysis***

Term analysis was conducted to see the present state of mindfulness research and its related or associated research domains. This analysis extracts key terms and words from the abstracts and title of the research and enables contemporary or future researchers to have an in-depth and larger picture of the current standing, trends, relation, and association of interested research variable(s), term(s) or domain(s). To do this, VOSviewer was utilized to ascertain the graphical results. No general meeting term was included in the research. Terms that occur at least two times were

included only and 43 terms fulfilled this criterion. Figure 10 represents the terms analysis cluster-wise. In which, the size of the single circle shows the occurrence of a certain term, and if it has a large size then it has a higher occurrence in the title and abstract of mindful organization publications. Secondly, the distance between circles, which represents the relatedness or relation between two terms, the closer they are, the more related they will be and its opposite in the case of distant circles. Lastly color of the circle shows their unique cluster within the publications, which is decided based on relatedness with other terms from entire clusters.

According to the term analysis, four different distinct but interrelated clusters of mindfulness research were observed; a green cluster (left upside), red cluster (left downside), blue cluster (top right side), and yellow cluster (centered). In the green cluster, mindfulness research was most closely related with organizations incidents related research, whereas healthcare is the most occurring key term in this cluster. Red cluster houses the maximum terms, and mainly deals with researches related to organizational aspects and mindfulness research, where prominent words are leadership, management, systems, etc. In the blue cluster, mindfulness is mainly associated with psychological outcomes and, where prominent terms were stress reduction, emotional exhaustion, meditation, and attention. Lastly, the yellow cluster mainly deals with high-reliability organizations with the occurring terms of collective mindfulness, mindful organizing, and high-reliability. The interesting findings we can find through this analysis is the average use of a certain term, which shows its relevance

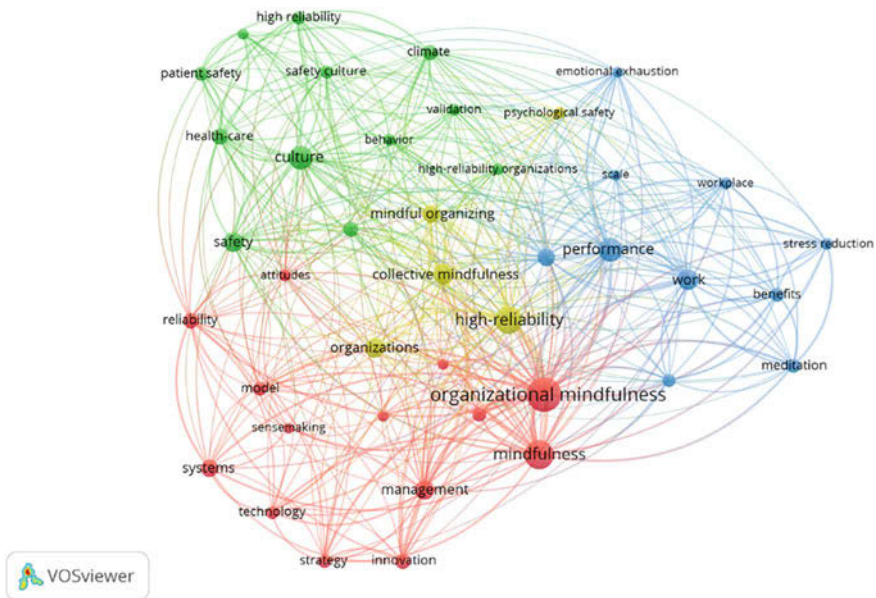
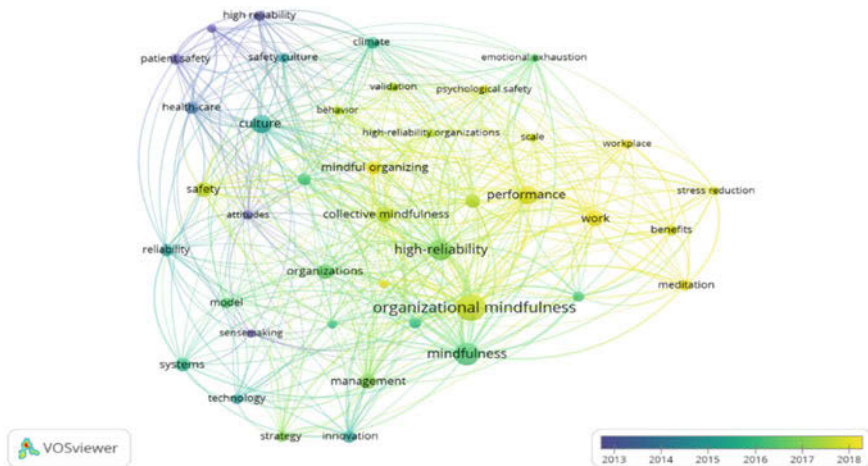


Fig. 10 Term analysis map for mindfulness research

to the field. Whereas, through analysis, a few of the most used terms for mindfulness research were Attitudes (average use 83 times), adverse events (average use 72), patient safety 61 (average use 72 times), high reliability (average use 56 times), health-care (average use 52 times) and safety culture (average use 51 times).

After assessing Fig. 11 it can be stated that in a year much of the recent work is carried on elements like stress reduction, work performance, medication, organizational mindfulness, behavioral outcomes, psychological safety, quantitative validation, and occupational safety in general. Finally, the map shows an increasing trend in empirical work, mainly associated with the objective indicator of safety performance i.e. (safety compliance and safety participation) as well as leadership and safety climate in the high-hazard industries (Gracia et al. Mar. 2020; Reneclé et al. Jan. 2020; Saleem et al. 2018; Isha 2012). To sum up the key terms and time map analysis of mindfulness research, it is evident to see the movement of mindfulness research from theoretical to more quantitative. Alongside this, the importance is given to high reliability, safety, performance, individual mindfulness, organizational mindfulness, and health care research is prominent. The movement of mindfulness research toward more empirical studies could provide more understanding of this phenomenon with more robust findings. Publication of mindfulness research on patients' health care in medical settings and high-reliability organizations like nuclear power plants, air aviation/traffic control management, and military organizations are still dominant in this field, which provides the opportunity to researchers to test mindfulness in other areas or disciplines.

It would be interesting to see the latest usage of terms to see the direction of research on mindfulness. In doing so VOSviewer was used to generate the term map showing the time-related information. Term with time information is shown in Fig. 11, in which the color of a term shown the average time usage of a term



**Fig. 11** Term analysis with the timeline for mindfulness research

concerning publication year. Terms that are more recently used are shown in orange color (right side of Fig. 11).

## 4 Conclusions

Through this research, the overall picture of the evolution and trends in mindfulness research from 2005 to 2020 is provided. This study included 122 publications covering 254 authors, 171 organizations and institutions, 78 journals, and 37 countries. Mindfulness research has gained notable growth over the period and the research in this field is still in the development phase and contains most qualitative works. According to results, mindfulness is mainly associated with the safe operation of high-hazard industries and sensitive organizations, where errors are inevitable and the occurrence of a small incident can lead to catastrophic consequences (Weick and Sutcliffe 2007). The variability and versatility of mindfulness research can be seen through its application in industries like health care, nuclear sector, air traffic control, military, and aviation industry. Mindfulness research has close ties with the high-reliability organization's research domain as it inherits the principles of high-reliability organizations, making the extension of it (Weick and Sutcliffe 2007). Mindfulness has also been linked with individual and organizational mindfulness, terms which are often confused with each other (Vogus and Sutcliffe 2012). Concerning (Perrow 1984) coupling and complexity chart, our findings suggest that other less hazardous industries/domains also needs to be incorporated in this chart, as mindfulness research has deployed widespread in the sectors like Computer sciences, Business Management, Communication, Economics, Environmental Sciences, Industrial relations labor, Information sciences, Psychology, Public environmental occupational health, and Social sciences. The inclusion of such industries in the chart would provide more insights about their inner mechanism in terms of their coupling and interaction complexity.

There are certain facts regarding mindfulness research derived from bibliometric analysis. First and foremost, it can be concluded based on the finding that more collaborative research work is required on, as much of the present work is confined to most western countries or the USA. Secondly, the application of mindfulness in other (sensitive and high-reliable) industries mentioned earlier resulted in a positive outcome which exhibits the potential and utility of this research domain is needed to better operationalize mindfulness interventions in other occupational settings. Finally, the geographical inequality is observed, as the research on mindfulness is almost nonexistent in most Asian countries except a few, which provides a huge opportunity for researchers from this region to learn and exercise the mindfulness research domain.



## 5 Study Limitations

There are certain limitations associated with bibliometric analysis. Firstly, the bibliometric technique has no control or look over the quality or the content of the research (in a qualitative manner), but it deals with the content more quantitatively. Secondly, we used the data extracted from the Web of Science only, which itself is one of the largest global data sources, but also a limitation to cover the entire literature available globally. Another limitation is the period provided by Web of science to extract data which was 2005–2020, although it is possible to have related work that could have been carried out earlier and may not be included in this research work.

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# The Impact of Strategic Human Resources Management Practices on Firm Performance: The Mediating Role of Supply Chain Management



Waleed Ahmad, Ahmed Zaid, and Mohammad Sleimi

**Abstract** This article sets out to study the associations between strategic human resources management (SHRM) practices, supply chain management (SCM) implementation, and small to medium enterprise (SME) firm performance in Palestine. An instrument was constructed, followed by detailed research confirmed by human resources management (HRM) and SCM experts' viewpoints. Several SMEs in Palestine conducted cross-sectional surveys that included both direct and postal questionnaires. Three hundred two usable surveys were returned. SEM was used to study the results. These data show that SHRM practices indirectly aid small and medium-sized businesses by implementing SCM. SCM implementation further explores if it mediates such interaction. It showed that SCM implementation has a total effect on the performance of SMEs. These data indicate that if SHRM standards are not in place, SCM won't boost SME performance. This study found the vacuum in SCM research by observing that SMEs lack SCM knowledge and incorporate SHRM practices into SCM implementation in SMEs. SCM adoption mediates the influence of SHRM practices on SMEs' company performance.

**Keywords** Strategic human resources management · Supply chain management · Firm performance · Small- and medium-sized enterprises · Palestine

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W. Ahmad (✉)

Department of Business Administration and E-Commerce, Faculty of Business and Economics, Palestine Technical University-Kadoorie, Tulkarm, Palestine  
e-mail: [waleed.ahmad@ptuk.edu.ps](mailto:waleed.ahmad@ptuk.edu.ps)

A. Zaid

Department of Logistic Management, Faculty of Business and Economics, Palestine Technical University-Kadoorie, Tulkarm, Palestine

M. Sleimi

Department of Industrial Management, Faculty of Business and Economics, Palestine Technical University-Kadoorie, Tulkarm, Palestine

# 1 Introduction

Supply chain management (SCM) has been proved to boost a company's productivity and efficiency (Chin et al. 2004). Several studies have examined various facets of SCM in recent years, including efficient SCM practises (Kim 2009), environment-conscious and long-term SCM (de Sousa Jabbour et al. 2015), supply chain social accountability (Salam 2009), SCM synchronization (Gligor et al. 2015), and a reliable, long-term supply chain (Gurzawska 2019). A more significant number of individual endeavors are anticipated as several organizations are combined, coordinated, and structured within a supply chain. This is related to the complexity of interpersonal interactions, necessitating the recognition of behavioral issues. The beneficial effect of human resource management (HRM) on SCM has been highlighted by Lengnick-Hall et al. (2013). Furthermore, several scholars have stated that the efficient implementation of SCM activities is contingent on implementing an effective HRM scheme (Ellinger and Ellinger 2014). In reality, while HR practices play an essential role in the spread of sustainable SCM practices (Amui et al. 2017), they also dismiss SCM practices (Muduli et al. 2013).

Several studies have shown that strategic management of human resources is an essential resource for a corporation (Katou and Budhwar 2006), especially businesses (Campos et al. 2019; Shepherd and Günter 2010). Strategic human resources management (SHRM) is responsible for directing and using all services to maximize revenues and achieve a competitive edge for a business. As a result, companies that use the right SHRM management methods in employee selection and recruitment, preparation, performance assessment, and compensation programs may improve their overall performance (Aycan et al. 2007). SHRM, according to a prior researches, has a significant impact on a company's capacity to achieve its corporate goals and activities, notably SCM acceptability (Kotzab et al. 2011; Robb et al. 2008). Human behavior was often disregarded in logistics and supply science, according to Tokar (2010), and more research is needed in this sector. According to Sweeney (2013), implementation issues are frequently due to a shortage of supply chain-sensitive cabling, which is the attention and understanding of human factors. In their latest study, van Hoek et al. (2020) stressed SCM's relevance of innovation and technology advances. They claimed the company's technical revolutions, such as Industry 4.0, the interconnectivity of things, and others, necessitate that potential experience in SCM execution in purchasing and supply management include human resources' placement and expert knowledge in working with technologies. Emerging technologies, where management leadership help is required, must be given special attention. van Hoek et al. (2020) was the most recent to address this. The need for career development in SCM for improving SCM resilience and learning to evaluate and manage was highlighted by the Covid-19 outbreak, which revealed how SCM was disrupted. Despite this, very few studies have examined HRM's function in SCM (Hohenstein et al. 2014).

In the Palestinian context, SCM has been identified as a strategic goal. The Palestinian National Authority (PNA) has established expansion strategies for its logistics sector to draw competition, achieve a strategic advantage, and expand economically.

The first comprehensive logistics framework implementation program, dubbed the 2009–2011 plan, began in 2009. In the years 2013–2016, the country's second logistics growth strategy was implemented. Palestine is currently implementing its third national logistics growth strategy (2017–2022) (RTMP 2016). SCM deployment success has been well-documented in experiments that used big companies as their sampling frame.

On the other hand, small and medium-sized businesses (SMEs) may not seem to have had the same experiences with SCM deployment. There have been few scientific studies on the effect of SCM on the success of SMEs. Even fewer studies have looked at how HR can affect the effectiveness of SCM implementation. SCM presents SMEs with several challenges, including aligning SCM with corporate strategies and addressing issues in a systemic manner (Quayle 2003). Based on recent ongoing studies, no reviewed literature has examined the effect of SCM and SHRM methods on the effectiveness of SMEs. Only a few studies have looked at how strategic planning methodologies like SHRM affect SCM and, as a result, SME competitiveness (Teller et al. 2012). One of the rare studies seeking to close knowledge gaps. Furthermore, our research is the first comprehensive and statistically sound analysis of Palestinian SMEs. As a result, the researchers hope they would lead theoretically and practically to support the strategic plan in assisting Palestinian SMEs to enhance their organizational performance. Section 2 comprises the literature review and develops a conceptual study model. The research methodology of this work-study represented in Sect. 3. The study analysis and results are reported in Sect. 4 and discussed in Sect. 5. Next, we discuss the results and introduce theoretical and managerial implications (Sect. 6). Finally, limitations and future research agenda are represented in Sect. 7.

## 2 Literature Review and Hypotheses Development

HRM practices have a substantial effect on workers and affect capabilities, perceptions, and behavior in terms of the outcomes of the practices that are placed in motion, according to resource-based view RBV (Yusliza et al. 2017). As a result, improved corporate efficiency should result from this (Hohenstein et al. 2014). Koulikoff-Souviron and Harrison (2010) concluded that successful human performance management necessitates a coordinated strategy through SCM. Furthermore, Mohtar and Rajiani (2016) state that successful SHRM programs allow companies to develop and transition individual staff members to high levels of skills and proficiencies such as organizational flexibility, organizational learning, information management, and ambidexterity. As a result, explanations of how and why SHRM relates to a company's success should focus on individual employee behaviors (Mishra and Sharma 2014). Companies use SCM as a tool to improve competitive advantage through efficiency, efficiency, and reliability, with an emphasis on consumer needs (Lengnick-Hall et al. 2013). Firms need not only infrastructure but also trained and capable HR professionals to accomplish these goals.

## 2.1 *SHRM Practices and Firm Performance*

SHRM has a significant impact on organizational success and, as a result, an extraordinary effect on organizational efficiency, according to literature reports (Wang et al. 2005). According to Michael Porter's strategic strategy approach, a company can increase its overall efficiency by considering individuals' behaviors and desires and linking them to SHRM practices; this means that SHRM practices can be viewed as a competitive advantage with the right design (Porter 1998). Organizations must first consider their workers' attitudes and desires; after which it would be easier for them to plan their SHRM to maximize their chances of achieving the optimal degree of operational effectiveness. Theory number one will make this connection, and it will help understand people's attitudes and desires. SHRM can help an organization's management plan effectively achieve its objectives (Ferguson and Reio 2010). The efficiency of a company can be improved by enhancing professional human resources. SHRM activities have improved overall firm success by increasing abilities, strength, and motivation (Delaney and Huselid 1996; Huo et al. 2015). Previous research has shown that successful SHRM has a beneficial impact on organizational success (Katou 2012; Purcell 2003). According to Purcell and Hutchinson (2007), employee attitudes and activities are complementary variables that affect the relationship between SHRM and organizational success. Organizations must first consider their workers' attitudes and desires; after which it would be easier for them to plan their SHRM to maximize their chances of achieving the optimal level of organizational success. SHRM activities were discovered to, directly and indirectly, impact the department's human capital output (Bolton et al. 2011). As a result of HRM activities, employee success can contribute to achieving the company's corporate priorities. As a result, incorporating HRM activities into the strategic management process will improve company efficiency (Wright and McMahan 1992). As a result, the following hypothesis is proposed:

**H1:** SHRM practices positively influence firm performance.

## 2.2 *SCM Implementation and Firm Performance*

One of the most critical aspects of corporate performance is supply chain management (Kannan and Tan 2005; Ou et al. 2010). Higher-level SCM operations assist businesses in gaining a competitive advantage and profit maximization (Kim 2009). Sukati et al. (2011) looked at the relationship between process improvement regulations and production processes in Malaysia. Strategic provider partnerships, customer connections, and information exchange, according to the experts, are all critical factors in supply chain success. Exchanging accurate data amongst every reliably in the supply chain, according to Siu and Mou (2005), is critical for Hong Kong companies to be able to use SCM techniques and procedures successfully. These were the most commonly reported factors for adoption by the survey respondents.

The efficiency of a firm may be improved by first recognizing how information technology may affect its market, e.g., by reengineering the business processes utilizing electronic channels. Moreover, several studies have demonstrated that SCM adoption can increase organizational effectiveness (Ou et al. 2010; Vanichchinchai and Igel 2011), but installing SCM is tough for SMEs.

According to currently available reports on SMEs, owing to a shortage of funding and experience, the majority of SMEs do not implement SCM. According to some reports, SMEs used SCM differently than big companies, SCM adoption affects SME performance (Arend and Wisner 2005). SMEs typically failed to supplement their strategic orientation using SCM. The SCM adoption strategies described by Kumar et al. (2015) include top management participation, knowledge sharing, and the formation of trustworthy suppliers. The SCM implementation was explored by four case studies. Kritchanchai and Wasusri (2007) used feature-based performance to determine supply chain activities. While doing the SCM implementation, the four issues they encountered were marketing and sales, productivity monitoring and scheduling, factory floor advancement, and information management. When small enterprises concentrate on their domestic supply chains and information exchange, lead times will be decreased. It is essential to establish supplier and customer relationship management. The Thai automotive industry was analyzed by Boonthonsatit and Junthawan (2015) using lean stream value mapping based on SCM. They discovered that lean SCM would increase supply chain efficiency by minimizing inventory and product delivery lead times and reduced molding machine changeover time and pressing unit cycle time. According to Hong and Jeong (2006), typical SCM systems are used at all sizes for various SCM operations such as resource allocation, order fulfillment, product creation, advertising, quality assurance, and precision measurement (Tsang and Antony 2001). Consequently, the following hypothesis is proposed:

**H2:** SCM implementation positively influence firm performance.

### ***2.3 The Mediation Effect of SCM Implementation***

Finally, this research proposes that evaluating the connection among SHRM and SCM could preferable recognize the techniques by which they influence firm success. Numerous empirical investigations in existing literature including Huo et al. (2015) and Lengnick-Hall et al. (2013) focused on the mediating influence of practical HRM-performance partnership activities. For example, Huo et al. (2015) discovered that SCM implementation mediates the HR practices-SCM success partnership. HRM activities have been shown to facilitate SCM execution and ensure better SCM results, resulting in improved organizational efficiency. Gómez-Cedeño et al. (2015) have also stated that effective SCM techniques heavily rely on HRM activities. Furthermore, because SCM requires all internal activities to work together effectively, organizational employees are critical in achieving SCM goals (Liu and Zhang 2011; van Hoek et al. 2010). Khan et al. (2016) investigated SHRM productivity

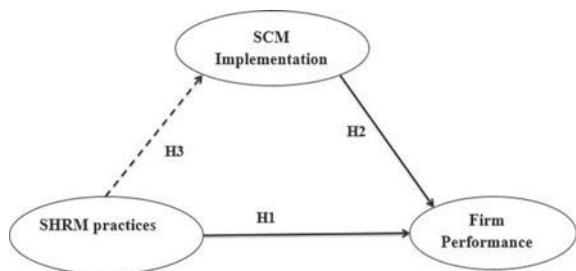
techniques in startups in the activities and industrial sectors in Karachi, Pakistan. According to their results, SMEs who practiced preparation, reward, and appraisal had a better chance of succeeding in SCM. The findings revealed that the HRM activities of small businesses have a considerable impact on their ability to succeed in SCM. They found that employee training and benefits are the essential factors of SCM effectiveness in HRM activities. The findings revealed that SHRM processes such as recruitment, reward, and appraisal were critical in determining whether a supply chain will succeed or fail in a small business. HRM is one of the key generators of SCM adoption (Teller et al. 2012). In a similar vein, Waller et al. (2012) stated that interpersonal efforts and stakeholder management are the most critical variables in real-life SCM.

Resource usage, especially the allocation of people management, is critical to SCM deployment in large corporations (Teller et al. 2012). Using an effective SHRM system will drive workers to support the organization, which will aid the firm’s growth. SCM has a further effect: SHRM processes follow suit (Koulikoff-Souviron and Harrison 2010). SHRM activities affect customer satisfaction and corporate results for SCM, according to Gómez-Cedeño et al. (2015) report. SHRM is becoming increasingly necessary for a company’s operations, especially in small and medium-sized enterprises (Campos et al. 2019), as HRM is an enabler for efficient SCM adoption. According to van Hoek et al. (2010), SCM implementation starts with the internal (inside) supply chain, and management leadership is crucial in grappling with the difficulty of achieving market synchronization. Furthermore, it is essential to partake in the application of SHRM methods in terms of cross-functional- based SCM coordination. Moreover, the findings indicated that personnel and management preparation and advancement are critical enablers in their ability to carry out the project successfully. The following hypotheses is proposed as a result of the literature review:

**H3:** SCM implementation mediates the link SHRM practices-firm performance.

The conceptual research model links among the study variables: SHRM procedures, SCM implementation, and firm performance are depicted in Fig. 1.

**Fig. 1** Conceptual research model





## 3 Methodology

### 3.1 *The Study's Context*

The Palestinian industrial sector comprises over 13,000 companies across 16 industries, with a majority categorized as SMEs (PFI 2019). The industrial sector employs 13% of the total workforce and contributes 16% to the Palestinian gross domestic product (GDP) (PFI 2019). In Palestine in particular, SMEs are considered to be one of the main players that able to enhance socio-economic development regarding its ability to rising production capacity in addition to diminishing unemployment rate as well as poverty unemployment problem (MAS 2014). Regarding the outputs of the general census conducted by the Palestinian Central Bureau of Statistics (PCBS) (PCBS 2019), the whole number of private businesses was 131,618 which exemplifies about 0.95 of working businesses in Palestine. These entities in fact are running in different fields, such as services, trading, small women-headed projects, manufacturing, agriculture, and various industries. to sum up, the concentration of this research is Palestinian SMEs.

### 3.2 *Variables Measurements*

This research relies on a questionnaire survey. SHRM practices, SCM implementation, and business performance are the three critical factors in this empirical study examined in a questionnaire created by several authors. The SHRM practices construct comprised of five dimensions: recruitment and hiring (RS), training and development (TD), performance appraisal (PA), pay and compensation system (PCS) and flexible work arrangements (FWA), each represented by three items adapted from Rugimbana and Akong'o (2010) and Sleimi and Emeagwali (2017).

In this study, SCM implementation pertains to the SCM notion's overall concept to increase its performance. Five characteristics of SCM's operational variable were information sharing (IS) (4 items), internal lean practice (ILP) (4 items), management leadership (ML) (3 items), supplier involvement (SI) (4 items) and consumer involvement (CI) (3 items) adapted from Vanichchinchai and Igel (2011), Ou et al. (2010) and Li et al. (2006).

Several factors may be used to evaluate firm performance. Supply chain activity evaluates efficacy regularly in SCM. For SMEs, Banomyong and Supatn (2011) developed supply chain performance tools. They looked at three areas of operational efficiency in internal procurement: cost, time, and dependability, such as customer service expenses per sale, order capacity utilization, and stock correctness. However, in this study, firm performance is judged at the corporate level rather than at the departmental level. This component is also evaluated from the standpoint of the employees. Employee participation (McPherson 2008; Sofijanov and

Zabijakin-Chatleska (2013) and work satisfaction may be studied from an organizational and management viewpoint (Siengthai and Pila-Ngarm 2016). Employee efficiency, product/service quality, on-time delivery, employee participation, and job satisfaction are assessed. Thus, in this current study, the firm performance was characterized by different subsystems: operational performance (OP), job satisfaction (JS), and employee involvement (EI). Four modified items from Rehman (2011), Sofijanovna and Zabijakin-Chatleska (2013) and Kitchot et al. (2020) assessed each dimension. The Appendix provides all modified measurements for current study items. SCM and SHRM practices' rating comprises 5 Likert-type scale (from 1 = strongly disagree to 5 = strongly agree). The firm performance scale is 5 Likert-type scale (from 1 = much lower to 5 = much higher).

### 3.3 Data Collections Procedure

A survey questionnaire has been employed to test the extensive model of this research work. One-time data collection that is cross-sectional design was used, whereas different statistical tests were applied to hypothesis testing. This research implicated a survey of 380 Palestinian SMEs (West Bank only). The probability sample was not able to be performed regarding the huge number of entities under SMEs conditions as well as the absence of reliable data about the number of SMEs enterprises in Palestine. For this, the convenience sampling technique was picked for the instrument. Consequently, PCBS relies on the next classifications of entities, according to many employees, including the owner (Alfoqahaa 2018; Zaid et al. 2021) (see Table 1).

Of the 380 online questionnaires distributed, 302 questionnaires were returned to the researcher; this represents a response proportion of 79.47%. Nearly all are in production and various enterprises, but there are many food and agri-business. Such SME's which are renowned for applying SCM activities are preferred in this study. Therefore, only those respondents who knew about SCM were approached. 200 responders are adequate for analysing structural equation modelling (SEM) (Sarstedt et al. 2017).

## 4 Data Analysis and Results

The use of structural equation modelling (SEM) mechanism is more reliable to measure the proposed research model. SEM is a technique that is able to overcome

**Table 1** Classification criteria of enterprises in Palestine by number of employees

| Micro | Small | Medium | Large   |
|-------|-------|--------|---------|
| 1–4   | 5–19  | 20–49  | 50-over |

possible complications or limitations that may arise during the analysis process by assessing a research model including first and second order and mediation relations, which is used within this study (Hair et al. 2014). Besides, Hair et al. (2016) have specifically indicated data normality as a non-issue basically. SEM have two different approaches, either the implementation of covariance-based (CB-SEM) modelling utilizing software such as LISREL and AMOS or apply the variance-based approach of the partial least squares (PLS-SEM) modelling utilizing software such as Smart-PLS (Hair et al. 2017). Specific to the research model of this study is the simultaneous examination of the mediating relationship and the examination of the whole research model, which contains first and second-order constructs. Therefore, Smart-PLS 3.2.9 was used to assess the proposed research model of this study.

#### **4.1 Measurement Model Assessment**

The current model was tested using a two-stage approach, where the measurement model was examined to test the first order constructs' reliability and validity in the first stage, following Hair et al. (2016) and Ramayah et al. (2018) instructions. Then, the second stage was to test the structural model where the hypothesis was developed.

Regards measurement model assessment, the item loadings, average variance extracted (AVE), and the composite reliability (CR) were tested, where the where values of items loading, CR and AVE should be greater than 0.7, 0.7, 0.5 respectively. As displayed in Table 2, all item loadings, CR and AVE of the first order constructs were more significant than the recommended value of 0.7, 0.7, 0.5 respectively. The validity and reliability of second-order construct (i.e., SHRM practices, SCM implementation and firm performance) were assessed as displayed in Table 3. The second-order measurements were also valid and reliable.

Next, discriminant validity was tested using the heterotrait-monotrait ratio (HTMT) criteria (Henseler et al. 2015; Sleimi 2020). Each HTMT ratio, as presented in Table 4, was less than the most restraining threshold of 0.85. Hence, this demonstrates a discriminant validity of study variable's (i.e., SHRM practices, SCM implementation and firm performance) were established.

Regarding this matter, the purpose of this paper was to explore the relationships between organizational performance and, GHRM practices bundle particularly from the environmental, economic, social, and operational points of view. The conceptual model adopted in this study is mainly grounded within RBV which was developed by Barney (1991), whereby it acknowledges that relying on the resources alone may not bring any benefit. However, the advantage of the competitor may be consequential from the collaboration mechanism of numerous resources (Barney 2001; Hohenstein et al. 2014). On top of that, these features were also found in GHRM which is considered as a vital approach in disseminating environmental standards and ideologies as well as producing talented and committed employees through the implementation of environmental ideologies within the firm in order to improve its

**Table 2** Measurements model results for the first order constructs

| First order constructs      | Items | Loadings | CR    | AVE   |
|-----------------------------|-------|----------|-------|-------|
| Recruitment and hiring      | RS 1  | 0.802    | 0.749 | 0.561 |
|                             | RS2   | 0.799    |       |       |
|                             | RS3   | 0.710    |       |       |
| Training and development    | TD1   | 0.822    | 0.817 | 0.623 |
|                             | TD2   | 0.734    |       |       |
|                             | TD3   | 0.775    |       |       |
| Performance appraisal       | PA1   | 0.810    | 0.724 | 0.534 |
|                             | PA2   | 0.890    |       |       |
|                             | PA3   | 0.845    |       |       |
| Pay and compensation system | PCS1  | 0.805    | 0.798 | 0.568 |
|                             | PCS2  | 0.765    |       |       |
|                             | PCS3  | 0.719    |       |       |
| Flexible work arrangements  | FWA1  | 0.756    | 0.754 | 0.597 |
|                             | FWA2  | 0.783    |       |       |
|                             | FWA3  | 0.794    |       |       |
| Information sharing         | IS1   | 0.821    | 0.829 | 0.601 |
|                             | IS2   | 0.789    |       |       |
|                             | IS3   | 0.792    |       |       |
|                             | IS4   | 0.713    |       |       |
| Internal lean practices     | ILP1  | 0.844    | 0.834 | 0.662 |
|                             | ILP2  | 0.832    |       |       |
|                             | ILP3  | 0.766    |       |       |
|                             | ILP4  | 0.782    |       |       |
| Management leadership       | ML1   | 0.839    | 0.806 | 0.712 |
|                             | ML2   | 0.835    |       |       |
|                             | ML3   | 0.784    |       |       |
| Supplier involvement        | SI1   | 0.846    | 0.818 | 0.769 |
|                             | SI2   | 0.809    |       |       |
|                             | SI3   | 0.741    |       |       |
|                             | SI4   | 0.736    |       |       |
| Customer involvement        | CI1   | 0.827    | 0.703 | 0.567 |
|                             | CI2   | 0.854    |       |       |
|                             | CI3   | 0.801    |       |       |
| Operational performance     | OP1   | 0.823    | 0.796 | 0.702 |
|                             | OP2   | 0.887    |       |       |
|                             | OP3   | 0.706    |       |       |
|                             | OP4   | 0.771    |       |       |

(continued)

**Table 2** (continued)

| First order constructs | Items | Loadings | CR    | AVE   |
|------------------------|-------|----------|-------|-------|
| Job satisfaction       | JS1   | 0.864    | 0.849 | 0.648 |
|                        | JS2   | 0.833    |       |       |
|                        | JS3   | 0.815    |       |       |
|                        | JS4   | 0.812    |       |       |
| Employee involvement   | EI1   | 0.894    | 0.811 | 0.755 |
|                        | EI2   | 0.797    |       |       |
|                        | EI3   | 0.893    |       |       |
|                        | EI4   | 0.704    |       |       |

**Table 3** Measurements model results for the second order constructs

| Second order constructs | Items | Loadings | CR    | AVE   |
|-------------------------|-------|----------|-------|-------|
| SHRM practices          | RS    | 0.780    | 0.707 | 0.681 |
|                         | TD    | 0.807    |       |       |
|                         | PA    | 0.842    |       |       |
|                         | PCS   | 0.786    |       |       |
|                         | FWA   | 0.795    |       |       |
| SCM implementation      | IS    | 0.820    | 0.889 | 0.744 |
|                         | ILP   | 0.841    |       |       |
|                         | ML    | 0.803    |       |       |
|                         | SI    | 0.788    |       |       |
|                         | CI    | 0.863    |       |       |
| Firm performance        | OP    | 0.874    | 0.816 | 0.733 |
|                         | JS    | 0.847    |       |       |
|                         | EI    | 0.824    |       |       |

**Table 4** Results of HTMT ratio

| Construct          | SCM implementation | SHRM practices | Firm performance |
|--------------------|--------------------|----------------|------------------|
| SCM implementation | -----              |                |                  |
| SHRM practices     | 0.688              | -----          |                  |
| Firm performance   | 0.564              | 0.612          | -----            |

performance (Chiappetta et al. 2017; Jackson and Seo 2010; Lengnick-Hall et al. 2013). Concisely, this study revealed that all hypotheses pro-posed in the conceptual model are well supported.

### 4.2 Structural Model Assessment

According to Hair et al. (2014), the value of  $R^2$  is used to determine the predictive power of the model. The importance of  $R^2$  are shown in Fig. 2, where the SHRM practices explaining SCM implementation were found to be high as the  $R^2$  value was 0.693. Indicating that SHRM practices can account for 69.3% of the variance in the SCM implementation in the Palestinian SME's. In addition, the  $R^2$  of firm performance is 0.675 which indicate the SHRM practices and SCM implementation together explain only 67.5% of the total variance in firm performance. Hair et al. (2014), recommended using cross-validated redundancy ( $Q^2$ ) as it estimates both the structural model, in which cross-validity redundancy is above zero. Table 5 shows that all of  $Q^2$  were above zero.

The result of VIF is presented in Table 6, where present that VIF is lower than 5, hence signifying that multicollinearity problem is not existing for the study structural model.

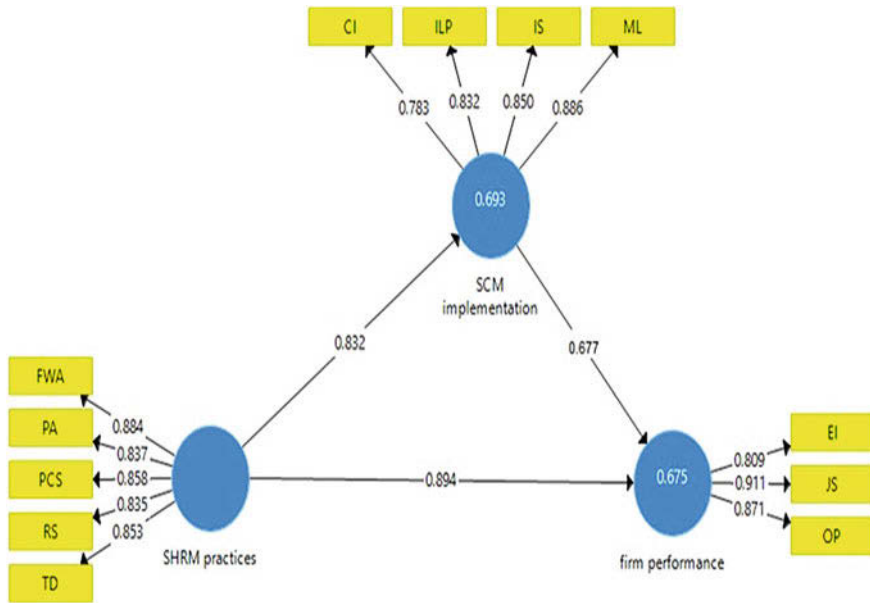


Fig. 2 R-square ( $R^2$ ) for endogenous latent variables

Table 5 Predictive accuracy and relevance of the model

| Construct          | $R^2$ | $Q^2$ |
|--------------------|-------|-------|
| SCM implementation | 0.693 | 0.386 |
| Firm performance   | 0.675 | 0.345 |

**Table 6** Variance inflation factor

| Construct          | SCM implementation | Firm performance |
|--------------------|--------------------|------------------|
| SCM implementation |                    | 2.033            |
| SHRM practices     | 2.188              | 2.244            |

**Table 7** Results of hypothesized direct and indirect relationships

| Hypothesis   | Std Beta | Std Error | t-value | p-value | BCILL | BCIUL | f <sup>2</sup> |
|--|----------|-----------|---------|---------|-------|-------|----------------|
| H1: SHRM practices → firm performance                      | 0.248    | 0.089     | 2.897   | 0.004   | 0.037 | 0.267 | 0.402          |
| H2: SCM implementation → firm performance                  | 0.275    | 0.094     | 3.281   | 0.001   | 0.058 | 0.297 | 0.432          |
| H3: SHRM practices → SCM implementation → firm performance | 0.304    | 0.072     | 2.115   | 0.035   | 0.069 | 0.186 | 0.153          |

Bootstrapping was run to test the hypotheses (Sarstedt et al. 2017; Sleimi et al. 2020). Furthermore, depending on Hahn and Ang (2017) instructions, the current study used a combination of criteria including p-values, confidence intervals, and effect sizes for testing the significance of the established hypothesis, as displayed in Table 7. Table 7 shows that SHRM practices has a positive and significant effect on firm performance ( $\beta = 0.248$ ,  $t = 2.897$ ,  $p < 0.01$ ,  $BCILL = 0.037$ ,  $BCIUL = 0.267$ ), also, SCM implementation has also positive and significant effect on firm performance ( $\beta = 0.275$ ,  $t = 3.281$ ,  $p < 0.01$ ,  $BCILL = 0.058$ ,  $BCIUL = 0.297$ ), therefore on the basis of above discussion it is established that H1 and H2 are supported. Regarding the mediation test, we followed the instructions of Preacher and Hayes (2008) a procedure via conducted a bootstrapping of the indirect effect. According to this procedure, the significant mediation exists only when the confidence interval does not straddle a zero value. As displayed in Table 7, the numerical results show that SCM implementation mediated the nexus among SHRM practices and firm performance ( $\beta = 0.304$ ,  $t = 2.115$ ,  $p < 0.05$ ,  $BCILL = 0.069$ ,  $BCIUL = 0.186$ ), thus supporting H3.

## 5 Discussion

The research findings imply that if a company (SME) wants to enhance its efficiency by applying SCM as a strategy implementation plan, SHRM practices must also be created as a plan to enable this strategic aim. The conclusion demonstrates a strong correlation between SHRM activities and SCM adoption, as well as the fact that

SCM deployment may improve a company's "work satisfaction," "employee participation," and, eventually, "operational performance." Palestine's corporate governance is influenced by job satisfaction (Siengthai and Pila-Ngarm, 2016). As a result, "job happiness," "employee participation," and "operational performance" are all included in the adjustment or modification required to allow SCM deployment to sustain organizational value. The effect of SCM implementation can be seen in higher levels of work satisfaction. Firm performance, on the other hand, is a long-term impact of SCM implementation. As per RBV theory, a corporation may get a competitive edge by utilizing existing internal resources like as SHRM. SHRM, according to the findings of our research, has the potential to boost organizational performance. Results reveal that a business may leverage human resources to assist SCM deployment in improving company performance. Effectively implementing cooperation, learning & support, performance assessment, and awards may strengthen the company's competitive advantage created by employee knowledge, skills, and talents. Our results underscore SHRM's strategic importance for corporate performance (Wright et al. 2001).

In terms of mediation interactions, the current study's key finding is that SCM adoption has a considerable impact on SHRM practices-firm performance linkages. SHRM is frequently overlooked in strategic planning and SCM implementation. This is especially true in SMEs, as most businesses prioritize the company's survival in the face of competition. In considerations of system and technology, most organizations are more concerned with addressing just the required or customer demands than than involving workers, i.e., requesting input from staff who may not desire or are blatantly resistant to suggested changes. Because it includes a strategic plan, SCM is strategic (Hong and Jeong 2006).

The results of this study suggest that SHRM practices requiring SCM deployment enhancements to affect company performance. SHRM practices become a vehicle via which a company may realize the influence of SCM on the company's performance. SHRM is an essential strategic partner in aiding a company to create the critical competencies to carry out its plan, including SCM (Den Hertog et al. 2010). Professional significant improvement and teamwork, for example, might be motivated by practical "training and development" and "rewarding" of employees. SHRM practices can improve employee abilities, motivation, and skills (Delaney and Huselid 1996). Employee inventiveness, analytical and problem-solving talents, and practical team management skills may be fostered through training and development, allowing SCM implementation to improve corporate performance (Bharthvajan 2014). According to Fawcett et al. (2008), the bridge or critical aspects for effective SCM adoption include relevant data, software configuration, and organizational people management, as well as an SCM training course.

Similarly, Gurzawska (2019) affirmed that SCM allows businesses to establish a competitive advantage and a positioning strategy. As a result, a customised bundle of SHRM practises as a system is necessary for efficient SCM deployment. Findings support Shub and Stonebraker (2009). They researched the human effect on distribution networks and discovered that HRM's coaching and development assessment may aid with SCM implementation. According to Teller et al. (2011), HRM is one of



the key drivers of SCM. Our findings show that SCM-focused SHRM duties include “team cohesiveness,” “learning & assistance” on SCM challenges, “performance assessment,” and “reward system.” “Job happiness,” “employee involvement,” and “organization performance” are all examples of changes designed to support SCM deployment in order to maintain firm performance.

This study’s findings appear to contradict Arend and Wisner (2005) assertion that SMEs and SCM don’t mix. They highlighted that, unlike major corporations, SMEs did not thoroughly incorporate SCM in their strategy. However, according to current study findings, SCM can ultimately help SMEs perform better. Even though small businesses do not have the same business strategy as large businesses, our results imply that SHRM practices may increase SME performance if SME SCM implementation is improved. In conclusion, SCM may be used in any size business.

## **6 Conclusion and Managerial Implications**

### ***6.1 Conclusion***

This research examines the impact of SHRM and SCM on the productivity of Palestinian SMEs. SCM is becoming even more crucial in corporate operations in the digital world, and SMEs are critical players in the supply chain. Although SHRM has been identified as an essential requirement for improving company performance, the link between SHRM, SCM, and firm performance in SMEs, developing economies such as Palestine, has received less attention. The current study connects the two research fields, namely SHRM practices and SCM, and investigates the effects of SME organizational effectiveness. This exploratory study looks into the relationship between SHRM practices and SCM to elucidate administrative value in SMEs. The current study’s questionnaire was created to look at the relationship between SHRM and SCM and their influence on business performance. Data was gathered through a survey. For data analysis, PLS-SEM is utilized. Our statistical findings indicate that SMEs may considerably improve and sustain business performance by applying SCM. SHRM practices are considered to be substantially and linked to SCM and company size, according to our statistical findings. As a result, SCM plays a crucial role in mediating the link between SHRM practices and SME success.

### ***6.2 Theoretical and Managerial Implications***

The construction of a new method for SHRM practices and SCM execution in SMEs to strengthen company profitability by considering the position of SCM implementations, which are experimentally found to help the effect of SHRM practices on SME firm performance, is the interferometry of this study. This is in line with the RBV

idea. This finding contributes to the SCM knowledge corpus. His findings demonstrated a link between two SCM-SHRM research fields. On the one hand, the hard side of SCM focuses on important operations in a company's value chain. SHRM, on the other hand, combines the soft side of SCM with the maintenance of company attitudinal areas that are critical to driving and controlling all industrial operations. The outcomes of this investigation back up behavioral SCM, which has received little attention. SCM deployment, according to our findings, mediates the influence of SHRM practices on company performance. They immediately affect employee happiness, staff involvement, and the operational performance of SMEs. As a result, SMEs need to merge their SHRM practices with a company's strategy, such as SCM implementation, to make an efficient business transformation. Entrepreneurs must see SHRM as a crucial element for reaching a firm's SCM aim.

The findings of this study demonstrate that SCM deployment is not confined to large corporations, which often have more resources than SMEs. Supervisors should value and support SCM's initiative to increase demand, human resources, and infrastructural facilities; should share ideas on enhancing administrative cooperation openly at all levels of the organization; continuous improvement programs and services that include crucial suppliers are just some of the SCM practices a company should implement.

The link between SHRM practices and SME performance is demonstrated to be entirely mediated by SCM implementations. The previous debate indicates that special provisions must be met to build or change effective SHRM practices for SMEs to coincide with SCM deployment, culminating in what we term "SCM-oriented SHRM practices." Publicizing or trying to encourage sharing resources, ideas, and details among functions; assuring workers of the criteria used to evaluate their employee productivity in SCM; and rewarding new supplier relationship management concepts through the corporation's compensation systems are examples of these practices.

To improve company performance and preserve their company, governments should encourage SMEs to utilize SCM and create SHRM practices linked with SCM adoption. For example, the government might grant tax benefits or financial aid to SME-related groups to train and enhance SME staff's ability to use SCM. This investment in human capital might take the shape of a university-small company relationship, such as career development and executive leadership education programs. Improving business performance through SCM implementation and building SCM-aware SHRM can help the Palestinian economy since SMEs are a vital driver of growth. Our research results have some relevance for other SMEs in all other developing economies, to a degree. Additional elements, such as culture and government regulation, may differ between regions/continents.

## 7 Limitations and Future Research Agenda

The many limitations of this study project can be considered in future empirical investigations. To begin, this study examines a sample of respondents from diverse sectors who attended seminars on logistics and supply chain management. Furthermore, the current research gathered information from Palestinian SMEs that had already used SCM to some level. As a result, the data collection does not include the whole population of SMEs, which is vast. Second, the study focuses on the opinions of management and supervisory employees. Empirical research is critical in growing the body of knowledge, which is a hybrid of academic and practitioner responsibilities (Waller et al. 2012). Besides the current empirical work, we recommend:

First, a scientific report as a qualitative approach (i.e., examples of best practices) might be helpful for future research to learn more about the significant success factors identified by SMEs in internal SCM discourse and recommendations, as indicated in this study. The study can collect data from all levels of employees, including administration, management, and project management, to examine how each level of employee views SCM deployment and its potential consequences. Second, focusing on a particular significant industry or flagship business might be exciting. Third, researching SMEs operating primarily as e-commerce companies and those using e-commerce as a strategic unit would also be intriguing, with SCM being critical to their operations. Fourth, incorporating SCM-oriented large-scale enterprises in a future quantitative research would be intriguing.

**Acknowledgements** The authors would like to thanks Palestine Technical University-Kadoorie for supporting this research.

## Appendix: Questionnaire

### SHRM Practices

- 1- Recruitment and hiring
  - Our organization has actions for adaptation of formal procedure.
  - Our organization use of tests in personnel selection and placement.
  - Our organization developed of job descriptions for key positions.
- 2- Training and development
  - Our organization implement a periodic training needs analysis.
  - Our organization implement a regular evaluations of training programs.
  - Our organization adopt evaluations on training results and outcomes.
- 3- Performance appraisal
  - Our organization has a regular performance appraisal activity.
  - Our organization has a formal procedures and evaluation forms.
  - Manager implement a specific rule for rewards by performance.

- 4- Pay and compensation system
  - Our organization has a specific pay link with performance.
  - Manager implement bonus link with monthly performance.
  - Our organization pay link with bank profits.
- 5- Flexible work arrangements
  - Our organization has autonomy in varying the duration of a work day.
  - Our organization has variability of starting or ending work time.
  - Our organization has a possibility to stop earlier or to make longer breaks.

### **SCM Implementation**

- 1- Information sharing
  - Managers of our company have wide access to information on distribution network demands, such as on-hand products, inventory levels, capacity, etc.
  - Top executives and department heads routinely meet to address their respective departments' requirements.
  - Form a team dedicated to knowledge sharing.
  - At all levels of our company, ideas for strengthening departmental cooperation are openly discussed.
- 2- Internal lean practice
  - Our company is launching a campaign to minimise inventory levels.
  - Our company is working on a project to cut down on setup time.
  - Our company is working on a project to minimize response time.
  - Our company is committed to constant improvement.
- 3- Management leadership
  - Our company assesses managers' performance is based on the SCM implementation goal, such as cost savings, dispute resolution, and so forth.
  - In order to increase demand, people, and facilities, managers appreciate and encourage SCM implementation strategies.
  - Managers are actively involved in the SCM implementation.
- 4- Consumer involvement
  - Our company works with major clients to establish quality standards.
  - Customer satisfaction is measured and evaluated by our company.
  - Our company establishes future client expectations.
- 5- Supplier involvement.
  - When it comes to selecting suppliers, our firm prioritizes quality.
  - Our company works with our suppliers to fix difficulties on a daily basis.
  - Our company assists our suppliers in improving the quality of their products.
  - Our company has a policy of continual improvement that includes our main suppliers.

## Firm Performance

### 1- Operational performance

How would you rate your company's development in service quality compared with the rest of your business sector?

In terms of staff productivity, how would you assess your company's performance in comparison to the rest of your industry?

How would you assess your company's on-time delivery performance in comparison to the rest in your industry?

How would you assess your company's pricing or cost performance in comparison to the rest of your industry?

### 2- Job satisfaction

Because you work for this company, your current position provides you with internal happiness.

Because you work for this company, you are appreciated for your work.

If this position is advertised/ announced, you will recommend it to a friend because you work for this company.

Because you work for this company, please rate your overall job happiness here.

### 3- Employee involvement

As a member of our firm's staff, you will have the opportunity to participate in problem-solving teams.

As an employee of our company, you will have the opportunity to use individual accountability in your work.

You were advised to exercise your judgement at work because you are a worker of this business.

As a member of our firm's team, you have the chance to weigh in on a variety of topics.

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# Research of Directions of Effective Management of Natural Resources in Ukraine



Fedun Igor , Budziak Olha , Budziak Vasyi , Sudarenko Olena , Valinkevych Nataliia , and Tyshchenko Oleksandr 

**Abstract** The article examines the problems of integration of natural resources into the zone of market influence. The analysis of researches on these questions is carried out, the problem moments are allocated. An algorithm for integrating natural resources into the market environment has been developed, which provides for the natural resource to go through stages with a change in their positions and the formation of market asset features. Possibilities of incorporation of land resources into the market, the potential of business development, and formation of the market of natural resource assets are investigated. The parameters of capitalization of natural resources and the concentration ratio of financial and economic regulation are calculated. Ways to strengthen the potential for integration of natural resources into the market area of influence have been developed.

**Keywords** Natural resources · Integration · Market · Algorithm · Incorporation · Capitalization · Regulatory activity · Ways to strengthen the capacity

## 1 Introduction

In modern conditions, the global landscape is formed by processes that are localized within different poles of influence and pursue opposing interests. The global

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F. Igor (✉) · B. Vasyi · S. Olena  
Kyiv National University of Trade and Economics, Kyiv, Ukraine  
e-mail: [i.fedun@knute.edu.ua](mailto:i.fedun@knute.edu.ua)

B. Vasyi  
e-mail: [v.budzyak@knute.edu.ua](mailto:v.budzyak@knute.edu.ua)

B. Olha  
Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

V. Nataliia  
Polissya National University, Zhytomyr, Ukraine  
e-mail: [natali1573@ukr.net](mailto:natali1573@ukr.net)

T. Oleksandr  
Kyiv National Economic University named after Vadym Hetman, Kyiv, Ukraine

trend is the spread and formation of post-industrial formations, trends in the information economy, its integration into the vast majority of areas of development. The strengthening of the positions of financial markets and the growing role of powerful TNCs that can compete with states have a significant impact. In particular, Amazon, Microsoft, and Alphabet/Google are similar.

Examples of collaboration between quite different types of activities that find common areas of interaction are relevant and innovative. Under its influence, new types of economic activity are formed, existing ones are changed. These processes, given their potential and rapid spread, also apply to natural resources, which to some extent have been sidelined and have shown no interest in maintaining current trends. However, it should be noted that modern approaches and technologies provide the basis for such interactions and it is already possible to identify several successful cases. Similar is the possibility of interaction between natural resources and the market.

The experience of foreign countries (in particular, the G7) convincingly proves that such interactions are already becoming a reality and have favorable effects. However, research is ongoing, and some important issues need to be addressed. The list of relevant issues includes research on the features and ways of natural resources integration into the market area, the formation of theoretical and methodological foundations of these processes, the establishment of their digital indicators, ways to strengthen the integration of natural resources into the market area.

## 2 Source Review

Given the relevance of such studies, it is now possible to single out a list of works on individual issues of interaction between natural resources and the market. Note that a number of them explore the processes and tools for economizing natural resources. An important element in this regard is the cost of natural resources, which is studied in the monograph (Pyrozhevskiy and Khvesyuk 2015). Note that this work contains many innovative elements (in particular, the inclusion in the cost items of payments for ecosystem services). An important monograph on the study of the natural resource potential of Ukraine (Rudenko 1993).

In the use of natural resources, a necessary aspect is the use of various levers of regulation, which will ensure their systematic use. Similar issues are explored in the development of “Financial and economic principles of nature management” with an assessment of the basic characteristics of the use of regulatory means (Khvesyuk 2020). The problem of natural resource potential management in the new conditions is covered in the monograph “Economic aspects of natural resource management and sustainable development in the context of decentralization of power in Ukraine” (Khvesyuk and Lyzun 2015). In this sense, it is important to introduce the integrated management of natural resources (Plany 2005; Rukovodstvo 2012).

Some works on research of separate elements (stages) of integration of natural resources into a zone of influence of the market are important. In particular, similar

are the articles by M. Hvesyk, I. Bystryakova and D. Klinovy (a separate issue, that examines the problem of the formation of natural resource assets) (Khvesyk et al. 2018a). The work on problematic issues of natural capital is relevant (Malyuga and Zamula 2001) (Maliuha and Zamula 2010). Reports on the development of interactions between natural resources and the market are important (The Future of Nature and Business 2020a, 2020b).

### 3 Purpose of Study

Given the relevance of these issues, the objectives of the study are to develop theoretical and applied foundations for the integration of natural resources and the market, highlighting the features of this process. Besides, it is important to establish digital features of the process that can reveal the peculiarities of interactions.

### 4 Methodology

The methodological basis of the study is formed by the key provisions, principles, and methods of modern economic theory, as well as the conceptual approaches of schools of economics to study the problems of development of interactions between natural resources and the market. The following methods were used in the study: statistical—in order to assess the quantitative characteristics of the functioning of state systems; system-structural—to determine the nature, structure, and basic approaches to the management of the national economy and others. It is important to use economic methods in order to establish the quantitative features of the process of interactions.

In particular, the method of calculating the concentration coefficient of financial and economic regulation activity was used to establish the peculiarities of regulation. For this purpose, it is advisable to use the procedure of standardization of indicators during a particular year (Stepanenko and Herasymov 2002). It is possible to allocate stages of research: 1. standardization of the indicators characterizing features of regulation. 2. calculation of integral quantities for the regions of the state. 3. calculation of coefficients of concentration of activity of regions of Ukraine as a whole. The calculation of integral quantities is carried out according to formula 1.1:

$$Z_i^* = \frac{Z_{i1} + Z_{i2} + \dots + Z_{ij} + \dots + Z}{n}, i = 1 \dots m \quad (1.1)$$

where  $Z_i^*$ —integrated assessment of regional indicators;

$Z_{i1}, Z_{i2}, Z_{ij}, Z$ —standardized indicators of regions;

$n$ —the number of incomparable indicators;

$i$ —comparable value;

$m$ —the number of regions ( $i = 1 \dots m$ ).

The activity concentration coefficient  $Y_i$  for any region can be calculated based on formula 1.2:

$$Y_i = \frac{Z_i^*}{Z_0^*} i = 1 \dots m \quad (1.2)$$

where  $Y_i$  –  $K_{Ka}$  financial and economic regulation of the region;

$Z_i^*$  – integrated assessment of regional indicators;

$Z_0^*$  – integrated assessment of the upper pole of the state;

$m$  – the number of regions ( $i = 1 \dots m$ ).

Besides, to calculate the level of capitalization, the method of the ratio of the average return on resource use to its value is used. Average profitability correlates with rental indicators (in terms of closing costs). If the capitalization is less than 15%, the resource is undercapitalized (Khvesyuk 2020).

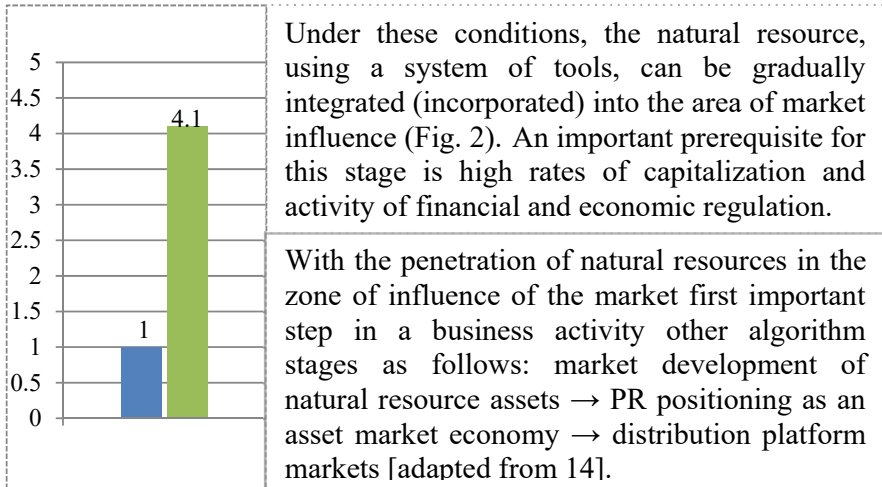
## 5 Conclusions and Discussions

Natural resource (NR) provided its integration into the sphere of influence of the market, changes its individual properties, and gradually implements new market positions. It is clear that to pass these stages, significant motivational principles and economic preferences are needed, which can be used under the condition of such integration. In other words, interests that may be drivers for the development of such interactions are necessary.

Explore the separate interests of a natural resource and market conditions for their convergence. It is logical to assume that the interests may differ for these entities, but it is possible to single out a block of common. Studies show that the main interests of natural resources include: the possibility of shifting the emphasis of use to market positions (from 0.4 to 0.75 points, which will contribute to their economic operation); disclosure of economization potential; with the help of market tools—strengthening their greening; improving the properties of natural resources.

Market interests are more closely linked to money and provide new opportunities to attract untapped assets to economic activity; inclusion of cost characteristics of natural resources in market processes; expansion of the field of investment (currently in the agricultural sector continues to implement more than 400 investment projects (IAPMAU); the possibility of forming balanced business projects with the participation of natural resources; the possibility of introducing new instruments (payments for ecosystem services, which at world prices can be several times higher than rent payments to local budgets) (Fig. 1). Subject to the actualization of the system of interests of the manifestation of interactions, it is possible to form the stages of integration of the natural resource into the zone of market influence, which involves several steps. The first is a gradual change in the position of natural resources.

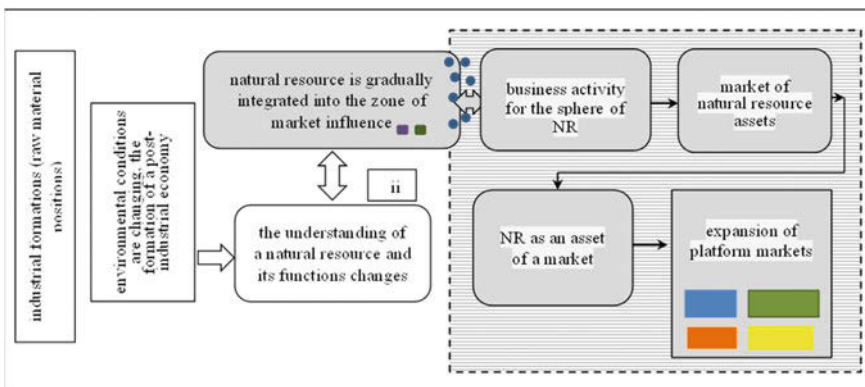
Note that the passage of these stages is a natural resource to expand their functional properties by reducing commodity positions and gradually updating the market. For



**Fig. 1 Opportunities for growth of payments for ecosystem services for pastures and arable land, times, 2018 year (1–basic level; 2–promising) Source: authors’ calculations**

land resources, raw materials include the satisfaction of consumer needs in agricultural products, land as a space for the activities of agricultural industries, and others. This approach has largely led to excessive pressure on natural resources and environmental issues (Fig. 2).

Market positions can be specified by strengthening the cost characteristics; building cooperation with the business sector (the possibility of entering the sphere



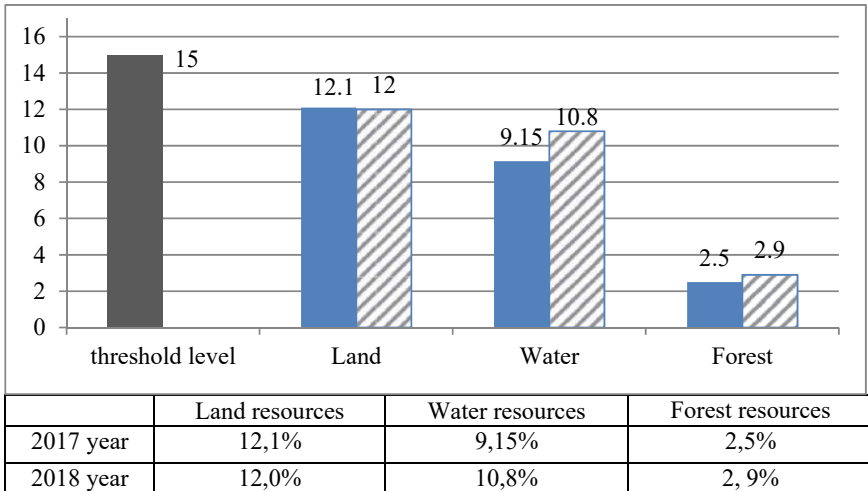
**Fig. 2 Stages of integration of natural resources of into the zone of market influence: ii—integration tools; ●—system effects; ■—capitalization; ■—the activity of financial and economic regulation; - - - - a sphere of market influence; ▨—cash flows Source: researched by the authors**

of influence of private companies); formation of financial flows; using new regulatory tools (payments for ecosystem services). In general, research shows that land resources can strengthen and implement market positions and are a valuable asset that can be effectively integrated into market processes and generate cash flows. After the change (expansion of functional positions), the natural resource is gradually integrated (incorporated) into the zone of the market influence. And this stage ensures the direct inclusion of natural resources in market processes.

The incorporation processes for the current stage of development in Ukraine are quite problematic, due to the influence of several processes. There are reasons, as the low level of economic development, the functioning of the institutional environment, the lack of tools, and the low level of state support. This is confirmed by the low global ratings of the state. According to the rating of ease of doing business (Doing Business), Ukraine in 2020 took 64th place (Doing Business), according to the study of the level of innovation processes (Global Innovation Index), the state took 45th position (Global Innovation Index). But, at the same time, there is a strong request from the business to carry out these procedures. Also, the positive foreign experience shows that the incorporation processes are promising and the states have already passed and resolved these issues. Note that such incorporation processes are possible under conditions of high activity for the industry, which can be specified by the capitalization ratio and the concentration ratio of financial and economic regulation in 2018.

An important prerequisite for the development of such interactions is the concept of capitalization. This concept ensures the “marketability” of the natural resource and its similarity to the assets of a market economy. It is important for their interaction. In general, if the capitalization is less than 15%, the resource is considered under-capitalized. The level of assets capitalization in Ukraine in 2017 was 14.5%, and in 2018 it increased slightly. Given the low parameters of current capitalization in the country, it is possible to predict that for the sphere of natural resources its level will be even lower, due to the fact that this sphere is not localized and does not gravitate to the market such as banking or the stock market. This is confirmed by the authors’ calculations, according to which the real capitalization of natural resources is low. The potential capitalization is higher and is in 2018: for land resources –12.0%, water –10.8, forest –2.9% (Fig. 3). But these figures do not correlate with the threshold level, although during 2017–2018 the capitalization increased for water and forest resources.

In the regional aspect, the capitalization of natural resources varies. But, in the general trend, each indicator of the regions forms the national level. For water resources in 2018, high % of capitalization tend to Dnipropetrovsk and Donetsk regions. Besides, the Zaporizhia region also has a high level of capitalization. % of these regions are >10% and exceed the national level. The Cherkasy region also shows a high level. For land resources for the same year, the state indicator exceeds 11 regions. The maximum interest rates gravitate to the capital and industrial areas. Assessment of spatial features shows that individual regions may exceed the state level and the capitalization threshold. But these are point cases. Given this, it is quite difficult for natural resources to position themselves within the market environment



**Fig. 3 Potential level of capitalization of natural resources of Ukraine for the period 2017–2018, %** Source: authors’ calculations

and ensure the formation of the necessary market indicators. The way to improve is to build the institutional sphere and important tools that enable the transition of natural resources to a new level of functioning.

In addition to capitalization, the second important indicator is the coefficient of activity concentration, which is formed by taking into account the following components: cost characteristics (estimated value based on regulatory monetary valuation), UAH million (n1); land tax (legal entity + individuals), UAH million (local budgets) (n2); rent (legal entity + individuals), UAH million (local budgets) (n3); proceeds from the sale of land, UAH million (local budgets) (n4); mastered (used) capital investments (land), UAH million (n5); mastered (used) capital investments in assets (agro-industrial complex, forestry sector), UAH million (n6); agro-industrial complex products by regions, UAH million (n7). According to the methodology, the calculation involves several stages. After the formation of the source tables, the places of the regions for each indicator among other regions of the state are investigated. The maximum value (1.0) is inherent in the state. It is already clear that some indicators occupy more important positions. The same applies to the regions. In particular, for n1 (cost characteristics) high values are characteristic of the Donetsk region (0.0769) and Dnipropetrovsk (0.0758). An important step is the standardization (rationing) of indicators to bring their quantitative parameters to a single statistical base, which is associated with the number of regions (Table 1).

An important characteristic for the calculations is the upper pole—the maximum value of a particular indicator among all regions. The pole plays a major role in calculating the activity concentration factor. Among all areas, the maximum values of the upper pole tend to n5 and n2.



**Table 1** Stage of standardization (rationing) of indicators of financial and economic regulation (fragment)

| Ukraine              | n1     | n2     | n3     | n4     | n5     | n6     | n7     |
|----------------------|--------|--------|--------|--------|--------|--------|--------|
|                      | 25     | 25     | 25     | 25     | 25     | 25     | 25     |
| Vinnitsia region     | 1,0096 | 0,6302 | 0,8508 | 1,6338 | 0,8373 | 1,8195 | 2,1033 |
| Volyn – “–           | 0,4728 | 0,4142 | 0,2731 | 0,7430 | 0,4082 | 0,5482 | 0,6073 |
| Dnipropetrovsk – “–  | 1,8951 | 3,2449 | 3,5015 | 0,3845 | 2,5643 | 1,2134 | 1,4371 |
| Donetsk– “–          | 1,9219 | 0,8741 | 0,8038 | 0,5690 | 0,1181 | 0,4563 | 0,6241 |
| Zhytomyr – “–        | 0,8582 | 0,3842 | 0,4918 | 0,7151 | 0,5383 | 0,8710 | 1,0090 |
| Transcarpatian – “–  | 0,6360 | 0,3552 | 0,1907 | 2,2776 | 0,8029 | 0,0779 | 0,3268 |
| Zaporizhia – “–      | 0,7705 | 1,2954 | 1,3909 | 0,5011 | 0,7267 | 0,7984 | 0,7797 |
| Ivano-Frankivsk – “– | 0,6260 | 0,4086 | 0,5165 | 1,0040 | 0,6370 | 0,4218 | 0,5093 |
| Kyiv – “–            | 1,6587 | 1,2522 | 1,0397 | 2,2046 | 4,0296 | 2,5743 | 1,7080 |
| Kirovograd           | 0,4465 | 0,4709 | 0,7847 | 0,1322 | 0,0912 | 1,2564 | 1,2443 |
| ....                 | ...    | ....   | ....   | ...    | ...    | ...    | ...    |
| The upper pole       | 1,9219 | 5,7817 | 4,1016 | 4,3047 | 7,2623 | 2,5743 | 2,1033 |

Source: authors' calculations

These are mainly regions with strong land potential and appropriate monetary parameters (Table 1).

An important characteristic for the calculations is the upper pole—the maximum value of a particular indicator among all regions. The pole plays a major role in calculating the activity concentration factor. Among all areas, the maximum values of the upper pole tend to n5 and n2. These are mainly regions with strong land potential and appropriate monetary parameters.

The calculation of integrated quantities for the regions of the state is after rationing, which is carried out according to formula 1.1. Integral values for the regions of Ukraine are rather uneven, which is due to the influence of objective processes. In particular, the maximum levels are typical for certain regions of central and southern Ukraine. These levels have a significant impact on the formation of the activity concentration ratio. The size of the capital is expressive, due to its position on a national scale. The formation of monetary assets in the region is not due to agricultural activities for growing crops, and the implementation of the management function and high price characteristics of the land.

The calculation of activity concentration coefficients (formula 1.2.) shows that the state indicator for 2018 is 0.2496. This indicator is balanced and reflects the general situation with the spatial localization of indicators (Table 2).

The regions of the state are significantly differentiated according to this parameter. Only 8 regions exceed the national level. The indicators of other regions are lower. The Zaporizhia (0.2233) and the Cherkasy regions (0.2179) are closer to the state level. Groups of regions were grouped to identify spatial features. Groups with possibilities of concentration (concentration) of activity of financial and economic regulation

**Table 2** Integral values and concentration coefficients of activity of financial and economic regulation of land use, 2018

|                      | Integral quantities | $K_{Ka}$      | $K_{Ka}$ Reg/Ukr | The place of the region in the ranking |
|----------------------|---------------------|---------------|------------------|--|
| Ukraine              | –                   | <b>0,2496</b> | –                | –                                      |
| Vinnitsia region     | 1,2692              | <b>0,3167</b> | +0,0672          | 7                                      |
| Volyn – “–           | 0,4952              | <b>0,1236</b> | –0,1260          | 22                                     |
| Dnipropetrovsk – “–  | 2,0344              | <b>0,5077</b> | +0,2581          | 3                                      |
| Donetsk– “–          | 0,7668              | <b>0,1914</b> | –0,0582          | 12                                     |
| Zhytomyr – “–        | 0,6954              | <b>0,1735</b> | –0,0760          | 13                                     |
| Transcarpatian – “–  | 0,6682              | <b>0,1668</b> | –0,0828          | 15                                     |
| Zaporizhia – “–      | 0,8947              | <b>0,2233</b> | –0,0263          | 9                                      |
| Ivano-Frankivsk – “– | 0,5890              | <b>0,1470</b> | –0,1026          | 20                                     |
| Kyiv – “–            | 2,0667              | <b>0,5158</b> | +0,2662          | 2                                      |
| Kirovograd           | 0,6323              | <b>0,1578</b> | –0,0918          | 16                                     |
| Lugansk – “–         | 0,3686              | <b>0,0920</b> | –0,1576          | 25                                     |
| Lviv – “–            | 1,5002              | <b>0,3744</b> | +0,1248          | 6                                      |
| Mykolaiv – “–        | 0,6264              | <b>0,1563</b> | –0,0932          | 17                                     |
| Odessa – “–          | 1,7167              | <b>0,4284</b> | +0,1788          | 4                                      |
| Poltava – “–         | 1,0890              | <b>0,2718</b> | +0,0222          | 8                                      |
| Rivne – “–           | 0,4603              | <b>0,1149</b> | –0,1347          | 23                                     |
| Sumy – “–            | 0,6028              | <b>0,1504</b> | –0,0991          | 18                                     |
| Ternopil – “–        | 0,5697              | <b>0,1422</b> | –0,1074          | 21                                     |
| Kharkiv – “–         | 1,5073              | <b>0,3761</b> | +0,1266          | 5                                      |
| Kherson – “–         | 0,5993              | <b>0,1496</b> | –0,1000          | 19                                     |
| Khmelnitsky – “–     | 0,7701              | <b>0,1922</b> | –0,0574          | 11                                     |
| Cherkasy – “–        | 0,8732              | <b>0,2179</b> | –0,0317          | 10                                     |
| Chernivtsi – “–      | 0,3991              | <b>0,0997</b> | –0,1500          | 24                                     |
| Chernigov – “–       | 0,6754              | <b>0,1686</b> | –0,0810          | 14                                     |
| Kyiv (city)          | 3,1314              | <b>0,7815</b> | +0,5319          | 1                                      |

Source: authors' calculations

are allocated. The first group consists of regions with the maximum coefficients, which are determined by the highest priority in terms of regulatory activity. Similar features are characteristic of the formation of financial flows of these regions. Group II consists of regions of high concentration; III—average; IV—low. The parameters of the coefficients within the groups are investigated. The average values gradually decrease from the group I to group IV (Table 3).

What do the levels of regulatory activity say for the incorporation of land resources into the market area of influence? Regions with high coefficients can more quickly integrate into the market area of influence (Table 4). Moreover, their quantitative

**Table 3** Grouping of regions of Ukraine by the coefficient of concentration of activity in the field of land use

| No gr. | Region  | Parameters within the group |        |        | Characteristics of the group  |
|--------|---|-----------------------------|--------|--------|---|
|        |   | min.                        | max.   | aver.  |   |
| I      | <i>Kyiv (city), Kyiv, Dnipropetrovsk, Odessa, Kharkiv, Lviv, Vinnytsia regions</i>                    | 0,3167                      | 0,7815 | 0,5491 | The group of the highest level of concentration of activity, the regions of which are determined by the highest priority in terms of regulatory activity and the formation of financial flows |
| II     | <i>Poltava, Zaporizhia, Cherkasy, Khmelnytsky, Donetsk, Zhytomyr region</i>                           | 0,1735                      | 0,2718 | 0,2226 | A group of a high level of concentration, the regions of which are determined by a significant priority in terms of regulatory activity and the formation of financial flows                  |
| III    | <i>Chernihiv, Zakarpattia, Kirovograd, Nikolaev, Sumy, Kherson, Ivano-Frankivsk, Ternopil regions</i> | 0,1422                      | 0,1686 | 0,1553 | Group of medium level of concentration, the regions of which are determined by a significant priority in terms of regulatory activity and the formation of financial flows                    |
| IV     | <i>Volyn, Rivne, Chernivtsi, Luhansk region</i>   | 0,0920                      | 0,1236 | 0,1077 | Low-concentration group, the regions of which are determined by the lowest priority in terms of regulatory activity and the formation of financial flows                                      |

Source: authors' calculations

parameters are more favorable for the development of interactions between land resources and the market. There are prerequisites for this and opportunities that are positioned in the system of contact points.

After passing the stage of incorporation, the natural resource enters the market environment. Entrepreneurial activity is an important prerequisite and factor for its implementation in this environment. The purpose of development is to position the natural resource in the market environment, expanding the boundaries of its operation. Besides, a list of new competencies will be gradually formed.

It is already possible to identify several examples of entrepreneurial activity for modern Ukraine. In particular, the activity of agricultural holdings is successful. For 2018, there are 85 agricultural holdings in the country and the leader in the land bank is Kernel. Land resources here serve as a basis for growing crops and industrial crops. Exchange activity in the field of land use is promising. Already, some agricultural holdings are listed on the Warsaw Stock Exchange.

**Table 4** Opportunities for the incorporation of land resources into the zone of market influence

|                          |   |
|--------------------------|---|
| Regions of the group I   | The highest level of concentration of activity provides the preconditions for faster integration into the zone of market influence. There are common points of contact between land and business. Possibility of inclusion of land resources in the activity of innovation and trust funds, exchange activity |
| Regions of the group II  | High level of concentration provides significant opportunities for integration into the market environment. It is possible to identify common points of contact. Promising are the investment processes, the activities of management companies   |
| Regions of the group III | The average level of concentration provides opportunities for integration and building interactions between land and business. The activity of joint-stock companies, private banking is possible. But to improve these processes, it is necessary to use support measures and tools                          |
| Regions of the group IV  | A low level of concentration implies not high enough opportunities for interactions. Support measures and tools are needed to improve these processes. It may be appropriate to develop niche interactions within individual communities  |

Source: authors' calculations

With the introduction of the land market, it is possible to include land resources in banking. Land can be used for lending operations. Besides, land use consulting is promising.

Entrepreneurial activity is associated with the possibility of forming a market for natural resource assets, which means natural resources that are included in economic activity (circulation), can generate cash flows and form economic benefits (income). Applied features of a natural resource asset are that it: 1) provides the formation of possible economic benefits (income); 2) the entity may control the income for the use of the asset; 3) there is a legal act that provides the ability to generate and control income for the use of the asset. An important feature of a natural resource asset is the identified owner, manager, and user of the natural resource, which guarantees its profitability in the long run (Khvesyk et al. 2018b; Bystriakov 2018). An important tool (key) to the formation of the asset is an entrepreneurial activity. The key parameters of the natural resource asset are given in Table 5.

Natural resources as an asset of a market economy. Further integration of the natural resource into the market environment reveals its new features and properties. With the development of entrepreneurial activity and the establishment of the market of natural resource assets, the resource gradually forms the features of the market economy asset. It is important to note that the natural resource asset retained the natural resource base (origin), although, with the strengthening of market positions, the natural resource as an asset of a market economy makes a "separation" from these positions. It is more integrated into the market and acquires the features of a certain independent "player". Such phenomena are characteristic of countries with a high level of development, with established post-industrial formations. The study of

**Table 5** Comparison of basic features of a natural resource (1) and a natural resource asset (2)

| Characteristic                                 | 1  | 2  |
|--|--|--|
| Right of use                                   | From the point of view of doing business is not fully established  | Identified owner, manager, and user of natural resources   |
| Inclusion in economic activity                 | Not included/included partially  | Included   |
| Ability to generate cash flows                 | Cash flows are formed under the condition of exploitation of raw material positions (rent....)   | Cash flows are generated during the conduct of economic transactions, inclusion in the chains of business activity   |
| можливість формування прибутку                 | Opportunity to generate profit   | Profit generation subject to inclusion in economic activity  |
| Opportunity for business process development   | Unstable opportunities   | There are conditions for the development and spread of business activity   |
| Possibility of economic valuation              | Existing estimates take into account mainly raw material items   | The estimation of cost characteristics taking into account various aspects (not only raw material positions but also market) is carried out. The impact of market positions may exceed raw materials |
| Possibility of interaction with other subjects | Is limited   | Wide opportunities for interaction   |
| Examples                                       | Land in the management of state enterprises, structures; forests in the management of state enterprises; forestry; private land and forest use | Land resources in the management of agricultural holdings as the initial stage of asset formation; opportunities for corporatization   |

Source: authors' calculations

this experience is useful to understand possible changes in the properties of natural resources and their participation in economic activities. The participation of natural resources in the activities of investment funds, exchanges can lead to the formation of these formations.

Given the manifestation of these processes, this will be an impetus for a new level of development and natural resources and markets. Moreover, it will contribute to the formation of a platform that provides for different variations of interactions with natural resources (including innovation).

Important processes that accompany the movement to an economic asset are the strengthening of cash flow generation, the formation of profits, which can lead to an increase in value. Under these conditions, the processes of corporatization and capitalization of natural resources become relevant.

Assessment of the potential of the formations "natural resource as an asset of the market economy" revealed that such phenomena are quite complex (in particular, for the conditions of modern Ukraine). It is logical to assume that significant institutional

upheavals and preconditions are important for such processes. Provided that there will be a stage of transition from a natural resource asset to an economic asset, then, with the low development of institutions, the preconditions for this will simply not be formed.

Provided that such formations of natural resources appear, the question of the “place” of their functioning, the disclosure of potential, arises. A similar place may be the platform market. We can say that the platform market is an institutional basis for unlocking the potential of various forms of natural resources.

A platform market is a specific environment with the necessary infrastructure for improved interaction between different actors (including natural resources and business) to realize common values. The purpose of platform markets, in terms of revealing new properties of natural resources and their integration into the zone of market influence, is the formation of conditions and opportunities for interactions of a new level with the participation of natural resources. The platform market operates taking into account not only the technical component but also others. In particular, platforms (for example, exchanges) worked for the industrial era in the absence of modern information technologies. The platform is not only in the modern sense, but there were examples from the past, there the basis was different. Today the basis is mostly informational.

## 6 Conclusions

The study showed that to incorporate a natural resource into the area of market influence, it needs to go through several stages, and each of them is characterized by changes in the properties of resources, their gradual interaction with market participants. Even though there is a rather low level of capitalization of natural resources (in particular for land – 12.0%, water – 10.8%), the coefficient of concentration of activity can identify some regions with good opportunities for incorporation.

To improve the situation in the field of incorporation of natural resources into the zone of market influence, the state needs to create conditions and opportunities for these processes. Possibilities of institutional support of the processes of incorporation of natural resources into the zone of market influence are also connected with the issues of state support.

It is important to implement integrated management tools to coordinate natural resources within all relevant sectors, policies and institutions to achieve a common goal. The system of such management requires the parallel consideration of different uses of resources (as a natural resource and as an asset of a market economy) and provides a structure in which competing stakeholders can develop measures to address future problems and uncertainties. Besides, an important feature of management is the ability to manage not only one resource, but also related resources (land, water).

In addition to the efforts of the state, a necessary condition is the market prerequisites for these processes, market demand. Foreign experience shows that good

indicators of incorporation of natural resources into the area of market influence are associated with a civilized market system, its significant potential.

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# The Mediating Role of Open Innovation Mindset on the Relationship Between Human Resource Management and Knowledge Management Toward Innovation Performance in the Jordanian SMEs



Ahmed Abdulaal and Norfarah Nordin

**Abstract** This paper explores the impact of human resource management and knowledge management on innovation performance, the relationship mediated by open innovation mindset. Thus, this study targeted the Jordanian SMEs as a population of the study, the researcher reviewed around 50 articles published in the last five years to catch up with latest findings. The findings approved the need of the SMEs in Jordan for such factors to develop the industry and contribute in the economy development, which means there is an innovation performance issue in the industry. Human resource management found as one of the top factors effect innovation performances in Jordanian SMEs, knowledge management as an essential factor toward activate and enhance the human resource presence in the firms. Finally open innovation mindset found as not studied and explored factor in the industry, which indicates an issue in the implementation of innovation performance in the country. Furthermore, the researcher recommends the future research to hold studies on open innovation mindset as well empirically examine the role on open innovation mindset role in Jordanian SMEs industry. This could clearly figure out the role of open innovation mindset on the implementations of innovation performance in Jordanian SMEs.

**Keywords** Innovation performance · Human resource management · Open innovation mindset · Knowledge · Management

## 1 Background

Innovation is creating the idea and plan it to be produced and practiced in the organizations (Kearney and Hisrich 2014). Recently, it is necessary and toward the booming of the organizations and industries. Thus, human resource management is one of

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A. Abdulaal · N. Nordin (✉)  
Graduate School of Business, University Sains Malaysia, Penang, Malaysia  
e-mail: [norfarah@usm.my](mailto:norfarah@usm.my)

A. Abdulaal  
e-mail: [ahmadalnuaimy10@gmail.com](mailto:ahmadalnuaimy10@gmail.com)



the main sources of ideas and innovativeness (Melhem 2019). The combination of human resource management and knowledge management resultant as innovative performance (Valdez-Juárez et al. 2018). This paper discussing the initiative mindset to innovation mediating role on the model of the study, which it will review the previous literature and compare the findings to conclude the role on innovation mindset on the relationships between the contents of the model. This study concentrates on SMEs in Jordan, stated that there is an innovation base in the country's industries (Hajir et al. 2015). (Ibrahim et al. 2021a) reported an issue in human resource management practices in Jordanian SMEs, which is impeding the goodness of the innovation outcomes in the industry. Despite the attempt made by the Jordanian government to encourage innovation in SMEs after the adoption of the Policy Paper prepared by Jordan Strategy Forum which aims to support new investment, increase employment, and innovation in Jordan's economy by identifying challenges facing start-ups and small business in Jordan, are hindering the improvement of innovation performance, such as effective creativity and knowledge management. (Melhem 2016) indicated the impact of human resource management and knowledge management on innovation performance in SMEs. Lack of knowledge management is one of the challenges facing SMEs in Jordan (Al-Azzam et al. 2017). (Alzuod and Isa 2017) concluded that SMEs in Jordanian service sector are facing a challenge in using innovation and creativity to leverage the rare resources available in the country to develop the country's economy and prosperity; HRM, KM must be studied along with the entrepreneurial orientation to make the economic cycle completed to better performance and outcomes. (Clercq et al. 2017) stated that there are a lot of obstacles for staff creativity impeding the development of the staff's working pattern. The managers' emotion and attitude towards employees affect the creativity of employees and their willingness to come up with ideas that would help their organizations to be the leader of the industry (Sakkijha et al. 2015). The creativity of staff in Jordan is affecting the organization performance and the development of the industries and country (Orabi 2016).

Currently, SMEs in service sector in Jordan are facing serious challenges derived from the crisis and effect the contraction of both global and domestic markets. The global financial crisis has had negative effects not only on the banking sector but has also contributed to the economy rapidly falling into recession. Therefore, promoting innovation in SMEs will help to boost the struggling economy of this country (Al-Hyari 2013).

Moreover, the 2014 Doing Business Reports showed a drop in the rank of Jordan's SME in service sector on many levels including starting, operating, and existing business. This indicates that, despite the fragmented efforts to modernize the business environment, the same challenges usually facing the organizations worldwide, as it's also in the Jordanian firm (Amawi 2013).

## 2 Literature Review

This section contains the overview of the variables would be studied. Innovation performance, innovation open mindset, human resource management and knowledge management will be separately explained in details. The summary of the meta-analysis of innovation performance in Jordan is described in Table 1.

### 2.1 Innovation Performance

In economics, Joseph Schumpeter was the one who introduced this concept in his “theory of innovations,” (Anthony et al. 2008) in which he defines it as the establishment of a new production function. The economy and society change when the factors of production are combined in a novel way. It suggests that inventions and innovations are the key to economic growth, and who implement that change in a practical way in entrepreneurs (Anthony et al. 2008).

The concept of innovation in the human sciences and culture is also used. The search through the investigation of new knowledge, the solutions or ways of solution, suppose curiosity and pleasure for the renovation. The concepts of avant-garde and creativity become relevant in this context (Rubin et al. 2015).

As the innovations are crucial in increasing the performance of organization, innovation of organization is operational for being multi-dimensional composed of 3 types of such innovations. Innovation in products, process and market (Tidd and Bessant 2018).

### 2.2 Human Resource Management

Human capital is the essential source of maintaining sustainable, creative, and innovative nations (Ibrahim et al. 2021b). Toward higher performance and leading a market in all over the world one of the main contents must be included into the plan and strategies of development is human resource management, to facilitate using the technologies, machines, implementing the strategies and achieving the goals (Ibrahim et al. 2019).

The management of the staff and the organization and the management functions of the sub-regional operations help the other units to meet the needs of their employees, has adopted a series of steps and in terms of design, the role of the management of personnel and an appropriate director with the function principle, in particular the administration managed by the management units, should be managed and developed by the manager of each human resources management organization (Cascio 2015).

**Table 1** Meta-analysis of innovation performance in Jordan

| Title   | Authors                 | Methods  | Results  |
|---|-------------------------|--|--|
| An Empirical Examination of Knowledge Management Processes and Market Orientation, Innovation Capability, and Organisational Performance: Insights from Jordan          | (Migdadi et al. 2017)   | The study focuses on innovation capability Using a survey of 210 Jordanian manufacturing and service organizations Targeting mid-level managers  | Market orientation and knowledge management lead to better innovation capability   |
| The effect of supply chain integration on technical innovation in Jordan: The mediating role of knowledge management  | (Ayoub et al. 2017)     | This study used survey data collected from 217 Jordanian manufacturing companies in electrical, electronics, machinery, and mechanical appliances industries                                   | There is a positive effect for knowledge management on technical innovation  |
| The mediating role of product and process innovations on the relationship between knowledge management and operational performance in manufacturing companies in Jordan | (Al-Sa'di et al. 2017)  | A questionnaire-based survey was designed and used to collect data from 207 manufacturing companies operating in the Jordanian capital Amman   | The results indicate that KM has significant positive effects on product and process innovations   |
| Impact of Strategic Human Capital Management Practices on Innovation Performance through Middle Management Characteristics: A Study of Industrial Companies in Jordan   | (Al-Ghdabi et al. 2020) | A total of three-hundred questionnaires were administered to sample members and two-hundred and sixty-three questionnaires were returned complete with a response rate of eighty eight percent | The results revealed that strategic human capital management practices have significant effects on innovation performance and middle management characteristics. Middle management characteristics significantly exerted an effect on innovation performance |

(continued)

**Table 1** (continued)

| Title  | Authors              | Methods  | Results  |
|--|----------------------|--|--|
| The impact of knowledge management capabilities on innovation in entrepreneurial companies in Jordan                 | (Qandah et al. 2020) | A questionnaire was distributed to 297 individuals in 40 companies, and only 202 questionnaires were completely filled and returned by the entrepreneurs at King Hussein Business Park and Al Hassan Business Park | Knowledge combination capabilities have a statistically significant mediating effect between knowledge based infrastructural capabilities and product/service innovation |
| Assessing the influence of total quality management practices on innovation in Jordanian manufacturing organizations | (Alshourah 2021)     | 123 usable questionnaires from the Jordanian manufacturing industry  | This search outcome confirmed the significant and positive relationship between TQM dimensions overall and product and process innovation perspectives                   |

### 2.3 Knowledge Management

Knowledge can refer to a theoretical or practical understanding of a subject. It can be implicit (as with practical skill or expertise) or explicit (as with the theoretical understanding of a subject); it can be more or less formal or systematic (Oxford dictionary 2014). Knowledge can be defined in various ways and within different perspectives. In fact, the academic question of how knowledge should best be defined is a subject of a lively epistemological debate (Vadrot 2017).

(Malik et al. 2015) Define knowledge as understanding that one gains through experience, reasoning, intuition, and learning. According to this view we expand our knowledge when others share their knowledge. New knowledge is born when we combine our knowledge with knowledge of others. (Berger 2015) For example, see knowledge as a set of shared beliefs that are constructed through social interactions and embedded within the social contexts in which knowledge is created. This definition emphasizes the social dimension of knowledge: knowledge is created by people inter acting and knowledge always has a context.

### 2.4 Open Innovation Mindset

Open innovation (OI) is activating the ideas and suggestion toward rapid and efficient innovation, including the internal and external knowledge in the organizations (Engelsberger et al. 2021). In another view (Chesbrough and Bogers 2014), open

innovation mindset accesses the knowledge to be transferred and spread upon the boundaries and across the circled environment and organizations to be useful in the world.

Employee's knowledge acquisition positively affects innovation performance and HRM (Papa et al. 2018).

The open innovation mindset is a dynamic capability (Bogers et al. 2019), the capabilities of open innovation mindset to create better business opportunities and overcome the obstacles especially for the developing firms (Engelsberger et al. 2021). Open innovation mindset is effectively mediating the relationships between variables such as human resource management, knowledge management and innovation performance in the firms (Gomezal and Rangus 2018; Costa and Matias 2020). Through the ability to integrate, build, and reconfigure internal and external competence, companies can address rapidly changing environments (Bogers et al. 2019). Key for sustainable growth is the firm's ability to recombine and reconfigure assets and structures as the economy, markets, and technologies change through three organizational processes: sensing, seizing, and transforming capabilities. This requires shifting resources such as talent and money to where they will deliver the most value (Teece 2007). Hence, a company with strong dynamic capabilities must be able to attract external high caliber talent and motivate them to share their knowledge through sensing (Lee and Chen 2019).

### 3 Study's Framework

This paper proposed a framework contains variables expected to effect the innovation performance in the Jordanian SMEs (Fig. 1). The researcher established this research model based on the previous literature, which (Is'haq Ibrahim 2019) conclude that there a significant impact of human resource management on innovation performance and organizational performance. The organizations need for a vital element to interact and collect the proper strength to the organizations in several levels managerial and operational. In the same study the researchers confirmed that HRM considered the only unlimited and unstoppable source of creativity and notions to handle the future strategies and plans. Long-term and short-term plans is flexible and changeable according to the accelerated changes in the world and only HRM could manage to adapt with the rapid changes and development. Furthermore, it's the target of each organization to lead the market and being the pioneer of an idea of production.

The accumulation of team knowledge in the organization and knowledge exchange and share could establish brainstorming and well use of creativity and turn it into implemented idea and innovative outputs (Xia et al. 2021). Thus, the excited knowledge body increases the innovation capabilities in the firm and widen the range or investment and performance (Lam et al. 2021). In this regard (Engelsberger et al. 2021; Lam et al. 2021) stated that open innovation mindset playing a role in mediating the relationship between human resource management and innovation performance,

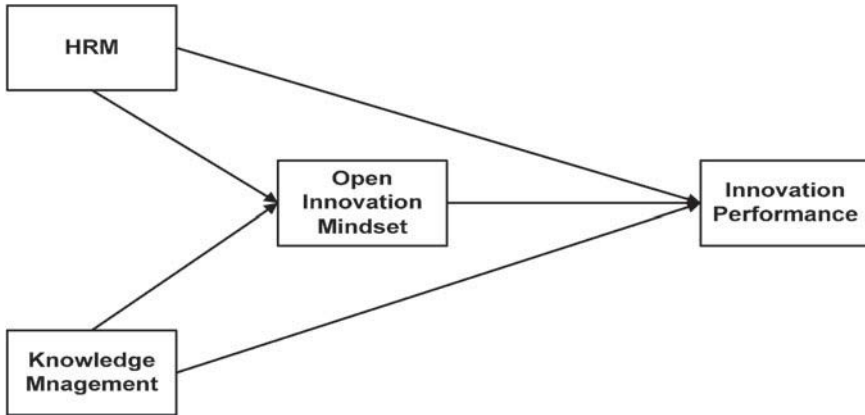


Fig. 1 Conceptual model

because the human resource management having the ideas, but they must have the willingness and braveness to speak out their minds and initiative to implement it. In the same study the researchers recommended the management to be supportive and allow the employee to do their jobs perfectly in a suitable and modern way.

This model concludes the theoretical base and structuring the researcher objectives.

#### 4 Methodology

This is a review paper to maintain a suitable theoretical base of the mentioned variables (HRM, knowledge management, open innovation mindset and innovation performance). The population of this research is the SMEs in Jordan, as an industry shall be improved and activated to contribute in the country’s economy. The researcher believes that the third world countries need for such revolutions toward comprehensive effort including all the sectors for the betterment of the nations. The researcher reviewed several articles reached to 50 in the recent 10 years. The selected articles considered amongst the most important articles contributed and highlighted the segments, variables, aspects, and results of the innovation performance in the country. As well as, the researcher relied on some annual reports and government programs to support the need of the country for innovation.

## **5 Findings and Discussion**

The findings of the review has been done by the researcher there was couple of points to highlight and conclude in this research paper. The 50 articles reviewed, annual reports and government reports and policies guide the researcher to figure out few points as detailed below:

### ***5.1 Innovation Performance Poorness in the Jordanian SMEs***

The poor performance of SMEs in Jordan refers to the poorness of innovation tasks, the previous studies stated that sharing the knowledge and cooperation amongst the employees ensure innovation achievement (Alkhazali et al. 2021). In another study (Abdallah et al. 2021) concluded that the lack of innovativeness is existed amongst the Jordanian sectors especially SMEs, the service sector is not operating well and its not serving all the society's levels. Arranging the human resources activities needed in Jordan toward innovation performance, the previous studies stated that mainly non-managed human resource and working without strategies impeded the achievement of innovation performance in the firms (Nassoura and Hassan 2021).

### ***5.2 Does Human Resource Management and Knowledge Management Contribute to Achieve the Innovation Performance in Jordanian SMEs?***

Knowledge management contributes directly and indirectly on innovation performance in the Jordanian SMEs (Ahmad and Al-Shbiel 2019). The essential components of innovation program is surely knowledge management which is existed in human being brain (Al-Abbadi et al. 2020). The innovativeness of the Jordanian form depends on the capability to innovate and produce new ideas and products (Migdadi et al. 2017).

Accordingly, the researcher conclude that knowledge management and human resource management is crucial toward the innovativeness of SMEs in Jordan. The empirical study approves the needs of Malaysian SMEs for the combination and human resource management. The exploration and examination of the Jordanian industries approved that there should be activation for the innovation perspective toward the prosperity of the country's economy, SMEs considered one of the most effective industries to enhance the economical performance in the nations.

Human resource management is the factor vitalization knowledge in the firms, as human resource a flexible and vital element in the firms (Iqbal et al. 2020).

### ***5.3 Role of Open Innovation Mindset on Innovation Performance***

The factor open innovation mindset neglected in the literature and disappeared; this indicates the missing idea of open innovation in the Jordanian SMEs industry. While in the studies the most firms recommend to practice open innovation performance is SMEs (Ndebi 2017), as the such sized companies the employees and level of managements could easily contact and exchange their ideas what usually ease the implementations of innovation. As (Nassoura and Hassan 2021) stated the Jordanian firm concentrated on human resource management without full-use and managing the human capital toward the betterment of innovation performance.

## **6 Conclusion**

This paper concludes that there is a significant impact of human resource management on innovation performance as one of the best sources toward higher innovativeness. Knowledge management embodied with human resource management activation and efficiency in the firms. Open innovation performance in the Jordanian firms is not existed which is a huge problem, the researcher recommends the future study to explore open innovation performance and held am empirical examinations as well. The research found open innovation performance is the main gate toward real innovation. Furthermore, the Jordanian SMEs needy for such factors to activate the human resource practices and knowledge effectiveness toward higher and notable improvement in innovation performance in SMEs in Jordan.

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# Attribution of Family Business-Based in Cultural Heritage Management in Malaysia



Noor Aimran Samsudin  and Zatul Iffah Mohd Fuza 

**Abstract** This paper explores the insight of Malaysian family business roles in cultural heritage management. By discussing the various definitions of the family business, this paper presents the attribution of this type of business model toward the sustainability of cultural heritage in this country. The broader perspective from various literature has been compiled, and it showed the significance of family business activity in heritage management. This study aims to explore general guidance for navigating critical modelling decisions to develop a business foundation in the family business and transgenerational entrepreneurship related to heritage management. The essence of business foundation in family business usually involves the dimension of simple business organisation or ‘smallness’, survivability, resilience and mobilise in economic factors and competitive succession. In this context, family business research has undertaken considerable efforts to understand better continuity and succession and how existing businesses set their foundation in businesses primarily related to heritage-based tourism products in Malaysia. To capture and explain how families bring new transgenerational entrepreneurship, streams of values to their heritage tourism-based business activities to survive and prosper across many generations were investigated. Based on critical reading of previous literature, the existing theoretical foundations are discussed briefly. In conclusion, tourism activities may offer a powerful strategy for preserving tangible and intangible cultural heritage and at the same time enhanced family business-related. Family business involvement in heritage tourism nurtures its growth and makes it more sustainable for a more extended period.

**Keywords** Family business · Transgenerational entrepreneurship · Heritage tourism product

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N. A. Samsudin (✉)

Head of Urban Design and Environmental Research Group (UDE), Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia (UTM), Johor Bahru, Johor, Malaysia  
e-mail: [nooraimran@utm.my](mailto:nooraimran@utm.my)

Z. I. M. Fuza

Faculty of Hotel Management and Tourism, Universiti Teknologi MARA (UiTM), Dungun, Terengganu, Malaysia

## 1 Introduction

The Ministry of Tourism and Culture reported that during the pandemic of Covid-19, tourist arrival in Malaysia drastically decreased from 83.4%, 4.33 million people (in 2020) compared to 26.10 million, a years before (MOTAC 2021a). That figure represents a significant impact on the local tourism industry. Many local operators run by family-based affected due to the current global health crisis. Both international and domestic tourists cancel their trips due to the government's implementation restriction and movement control orders (MCOs) several times. MOTAC plays a vital role in enforcement and implements provisions in the Tourism Industry Act, Tourism Vehicles Licensing Act, and other regulations made thereunder. Operators are required by law to register and be licensed before beginning tourism-related business activities. These include licensing of Tourist Accommodation Premises, Registration of Tourism Project, administration of Malaysia Tourism Quality Assurance (MyTQA), National Library Membership Registration, Museum Volunteers Registration, Craft Entrepreneurs Registration, Craft Members Registration among others (MOTAC 2021b). Since then, many family-business-based tourism operators have established and contributed significant roles, especially in heritage tourism. Significantly the growth of family business firms or companies contributed towards Malaysian economic growth.

Many listed firms in Malaysia are owned or controlled by the family. These companies appear to be inherited by their descendants (Rahman 2006). The development of family business in Malaysia has contributed to producing many tycoons with their respective business fields (Haslindar and Samad 2010). This business model is usually controlled and started by a single-family unit involved in certain entrepreneurial and business activities. It is also known as the 'family firm ownership'. How family business-oriented turn become corporate companies after a few generations inherited is still debatable among researchers. In heritage tourism, family business-based is one of the critical sectors involved in different levels such as local tour operators, travel agencies, tour guides, hospitality providers, logistics, and transportation. The existence and support from family businesses contribute significant roles in this sector. A true partnership between communities and the tourism and heritage sectors can only occur if all sides develop a genuine appreciation for each other's aspirations and values (World Tourism Organization 2012).

### 1.1 Heritage Tourism

Scholars often refer to the 'heritage tourism' term as any travelling experience to the specific places that authentically represent the local culture stories and people. According to the National Trust for Historic Preservation (2008), heritage tourism includes travelling to places that consist of artefacts and activities related to cultural heritage, historical values and natural resources (Trust and for Historic Preservation

2008). Such experiences offer unique travel experiences that may combine several elements such as history, education, entertainment and authenticity. Culture and heritage tourism play a critical role in building the local economy and business opportunities in this context.

This tourism sector often attracts high-yield tourists’ groups, which tend to stay longer at each place and spend more money than conventional tourists. The historic buildings, sites, museums, galleries, and national parks where such groups often learn something new about local tangible and intangible heritage. Some of these places may offer heritage tourist activity and hospitality services related. It may be conducted or operated by the local community. This situation creates an opportunity for locals to open up a small-scale business nearby.

Heritage tourism is a catalyst for local economic benefits. Still, there are cases where gazetted heritage sites or buildings face maintenance and management issues due to the lack of budget. The changes in officers, trained workers or performance staff to other places may also influence the continuity of specific activities in such areas. When there is a lack of activities offered in each destination or attraction spot, tourists may not be interested in visiting. As a result, heritage sites or buildings face decay and are not fully utilised. It may lead to poor condition and not being maintained properly. As a result, such an area has been forgotten. The small and local businesses nearby depend on the number of tourists visiting the site to sustain their businesses, such as restaurants, souvenir shops, tourist agents, bicycle rent and guides. The involvement of the local community in the heritage tourism industry through family businesses is seen as a successful business model for heritage sites or areas.

**Heritage Tourism Product in Developing Countries**

Heritage products describe tourists’ culture and heritage, such as ruins, museums, historic sites, performance, culture, and art. The component of tourism includes heritage, culture and environment aspects. The role of heritage products in the creative industry divides into three mediums 1) Marketing communication, 2) Value-added in tourism products, and 3) Product image. Figure 1 shows the implication of heritage products on the Malaysian tourism industry. The heritage tourism product in developing countries might be different in terms of gross domestic per capita. Heritage tourism is the upper growing and much faster than other tourism scopes (Dallen 2009). Table 1 and Fig. 1 shows the characteristics of developed and developing countries:

| Components in Tourism | Heritage Product (Creative Industry) | Role of Heritage Product          |
|-----------------------|--------------------------------------|-----------------------------------|
| Heritage              |                                      | Medium in Marketing Communication |
| Culture               |                                      | Value-Added in Tourism Product    |
| Environment           |                                      | Product/ Organizational Image     |

**Fig. 1** The implication of heritage products towards the Malaysian tourism industry (Mat et al. 2010)

**Table 1** Characteristic of developed and developing countries (Dallen 2009)

| Traits   | Developed Countries (MDCs) | Developing Countries (LDCs) |
|--|----------------------------|-----------------------------|
| Per capita GDP and income                              | High                       | Low                         |
| Percentage of the population employed in manufacturing | High                       | Low                         |
| Energy use   | High                       |                             |
| Percentage of population living in cities              | High                       | Low                         |
| Percentage of population living in the rural setting   | Low                        | Low                         |
| Birth rate   | Low                        | High                        |
| Death rate   | Low                        | High                        |
| Percentage of population under age 15                  | High                       | High                        |
| Percentage of population that is literate              | High                       | Low                         |
| Amount of leisure time available                       | High                       | Low                         |

## 1.2 *Heritage Tourism*

The family business activities are frequently referred to as the ‘family firm’. The family firm is considered as the early stages in the enterprise circle or business. The family firm has characteristics, i.e. small and medium-sized, slow-growing, flat organisation structures and internal succession patterns, relying upon self-financing or on local, often informal credit sources and avoiding stock market finance, implicitly back-ward from the perspectives of production technology and labour relations and less profitable than managerial ones (Colli 2003). One of the main criteria was family business sustainability, generally driven by a sense of responsibility for the stewardship of the business.

For example, the owner of a family business bonds with a certain level of commitment, taking care of continuity of family values, branding, and business core inherited from generation to generation. Sometimes these values underpin the sustainability of operation and its working culture. Firms are involved in a group of people with significant equity stakes directly connected to blood or marriage (Claessens 2002). The family business is a firm with finite equity ownership or family members sitting on the board of directors (Anderson 2003). A company in which many members of the same family are interested, either contemporaneously or overtime, as major shareholders or managers (Miller 2007). How strong is the values-driven culture in the family business that actively operates and is involved in the heritage tourism

industry? How do they differentiate between the business core values and the family values?

Their dynamic needs to be explored to understand how vital the family business’s roles in operating heritage tourism are within historic sites or areas. An individual that involved in this type of business have at least four (4) roles known as (Bik 2012):

- i. Builder—To develop, support and monitor the founders’ culture and traditional values inherited from previous generations.
- ii. Binder—Binding the family, family shareholders and stakeholders.
- iii. Manager—Professional leadership and development of the family business.
- iv. Embedding—The embedding of culture and behaviour within the family business.

The significant differences between the family business and other types of the business model are (Bik 2012):

- i. The business is held by a small or manageable number of owners with close family ties. There is a strong ethic of social control within the family.
- ii. Economic value creation is only one of the drivers; time horizons vary from long to very long (beyond the next generation).
- iii. The family feels a strong responsibility to the staff and the local community—a great store placed on long term relationships with suppliers and customers (reciprocal).

Furthermore, the ‘three-circle model’ consists of three (3) elements known as 1) Business, 2) Family and 3) Ownership. There are eight (8) different groups of stakeholders within these three circles (Tagiuri 1996). They believed that the various stakeholders in the family business link and overlapping to each other (Fig. 2):

Family values are the main anchor of the family business culture. It may contribute to the business’ identity (branding). A culture that exists in this operation is a binding factor for employees in the family business. An emotional bond among their staff enables them to bind each other more effectively than listed companies or government



Fig. 2 The three-circle model of a family business

agencies. It creates a sense of ownership, sense of belonging and loyalty to the business they inherited from previous generations. Overall, family values are the key that determines how it should be practised in the industry (operational) and govern (management). From the family values, it may change to become a business or core values. Translating family values into core (business) values for family companies or firms creates a moral standard that guides their entrepreneurial and operational activities. However, family values and core values in a family business is often unwritten (Bik 2012). Both are usually embedded and applied indirectly by the owner in their daily operation without formalised it. For example, successful transitions determine better business performance in the family business (Ghee 2015). It is fuelled by strong family member relationships, work and family values, and successor training and experiences.

## 2 Background

By reviewing the existing literature related to the family business operation model in the heritage tourism industry, this publication provides an outcome and general knowledge for managing family businesses in this sector.

## 3 Development of Business Foundation

Entrepreneurship's leadership and critical thinking are fundamental in creating new entrepreneurial innovation and competitiveness among big companies. It is also not only for the new entrepreneurship, and to ensure its sustainability is essential to sustain the internal capability of generative (Schumpeter 1934).

The market aspect has a supply and demand; the family business also creates employees to reduce the unemployment rate, especially in Malaysia. The advantage of family entrepreneurs is that they tend to support philanthropic causes and are open to being community-minded.

### 3.1 *Foundation for Modern Business Concept Creation*

One must come to terms with enhancements to win the global market. Internet technologies are advancing to support commercial transactions and invented new commercial transactions. Companies need to work rapidly to generate value for clients to use information that is yet to use. Displayed equations are centred and set on a separate line.

- i. Academic-Industry Collaboration Model



The model for creating expertise in exploiting the capacity of information technology or information systems to build new market opportunities connects manufacturers, consumers, developers, providers of applications, business partners, and other stakeholders. Typically, three parties, an academic, a business organisation and an outside entity, such as a technology vendor, are interested in using this model, as shown in Fig. 3.

ii. Mental model to drive change for business survival

Owners of the second generation may use the tripartite model to leverage IT to launch an industry-sponsored project to change SMEs. These three goals are about:

- a) Gain skills that are more self-reliant in improving strategies to handle the transition in challenging times.
- b) To generate more value for companies, rethink the sales process
- c) Increase awareness of developing a modern business model for development (creating capital and creating customers) in the information age.

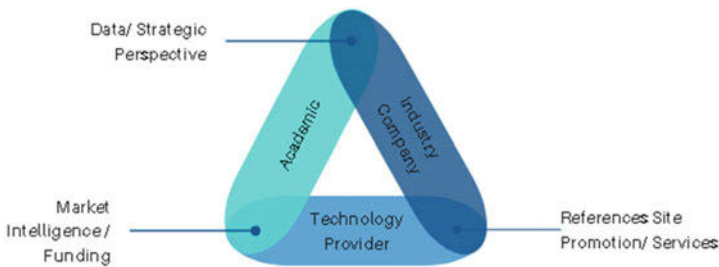


Fig. 3 Tripartite model of technology transfer (Chung and Yuen 2003)

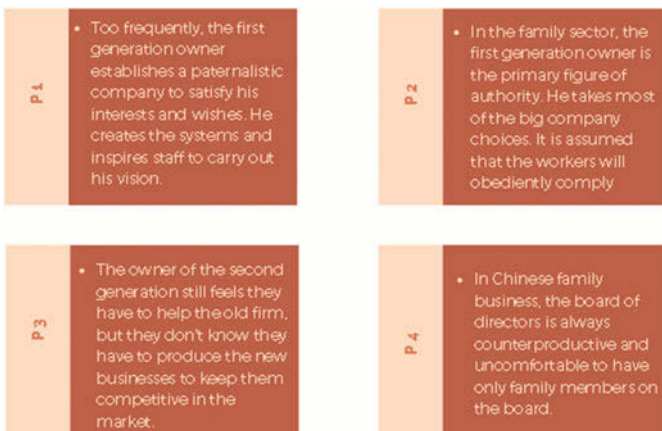


Fig. 4 Process for the reinvention of SMEs survival (Chung and Yuen 2003)

The conceptual model available to the first generation owner is rarely the same as what is essential to the owner of the second generation. The system was developed to offer input into the proposals below (Fig. 4):

### 4 Trans Generational Entrepreneurship

The family business is the main drive for socio-economic development and wealth creation; entrepreneurship is the main factor in family business-driven. The enterprising activity is the creative form of entrepreneurship. The process used by family and develops entrepreneurial mindset and family influenced capabilities to create new entrepreneurial, financial and social value streams for the next generation in family business defined by transgenerational entrepreneurship (Zellwegar and Nordqvist 2010).mThe transgenerational entrepreneurship concept of family firms’ success relies on firm entrepreneurial orientation, families and cultural context (Andrew Hollis Sarah Hollis 2019).

The concept will impact the financial, market and social performance. The major problem of transgenerational entrepreneurship is usually family firms consist only of a single business entity and the control aspect of the transgenerational business (Nordqvist and Thomas 2010). There are some analysis levels such as (individual, group, industry, society, and organisation. The family has not been considered a different level of analysis despite being a characteristic feature of family discrimination. (Low and MacMillan 1988) The family business’s major element of continuity and longevity is creating and fostering critical thinking across generations. It is the strategic implementation, business innovation and effective strategy growth. Refer to diagram Fig. 5 below to show an overview of the research framework of transgenerational entrepreneurship.

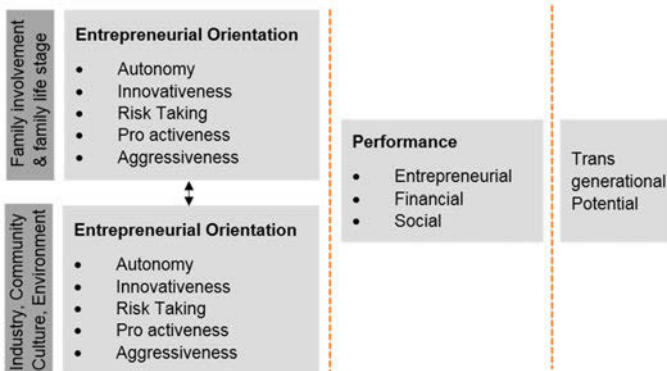


Fig. 5 Transgenerational entrepreneurship of research framework (Nordqvist and Thomas 2010)

## 5 Factors of Cultural Heritage Tourism Operations

From the research by Garrod and Fyall's survey study, experts on heritage tourism, government leaders, and managers of heritage tourism attractions focus on few factors on heritage tourism such as below (Garrod and Fyall 2000):

- i. **Assessment of Cultural Heritage Tourism Potential**  
As a first step in the growth of cultural heritage tourism, societies can use this success factor to act as the other seven success factors.
- ii. **Establishment of Clear Objectives and Concepts**  
Key stakeholders should set specific heritage tourism goals and should know what expectations of them. Developing a strategic plan is the development of a general cultural tourism vision. During this process, the stakeholders should establish the mission, goals, objectives and action steps.
- iii. **Strategic Planning**  
The most critical factor in the progress of the growth phase of cultural heritage tourism is Strategic Planning because, in this phase, it may take effort and lots of time. In the meantime, heritage destinations need commodification to draw visitors and to optimise the opportunity for them. Communities also play their roles in attracting tourism (Potts and Harrill 1998). The crucial steps are discovery, mutuality, locality, historicity, potentiality and enhancement. It has been argued that discovery also involves the public, and at this time, mutual fears and expectations determine the process of development.
- iv. **Management and Preservation of Assets**  
Management and preservation of assets are important to the present and future generations, too, as the heritage assets are irreplaceable. Effective management of cultural heritage tourism emphasises interpretation and restoration while allowing the essential balance between heritage and tourist resource requirements.
- v. **Preparation for Tourism**  
Harrill and Potts take the six measures to plan sustainable cultural heritage tourism such as 1) prepare a place, city, municipality or area for tourists physically and financially, 2) making the site and program alive, 3) preserve and 4) protect resources, 5) create partnerships, and 6) get public support.
- vi. **Maintaining Authenticity**  
Tourists crave an entertaining experience, so signing the interpretive service is crucial to consider the heritage value.
- vii. **Effective Marketing Strategies**  
Identifying the target demographic, key goods, financial and non-financial priorities in promoting cultural heritage tourism is part of marketing strategies. The important for effective operations of cultural heritage tourism is public relations via media resources to get residents or visitors to acknowledge the program, advertising, graphic materials, promotions and evaluation (McKercher and Cros 2002).

viii. Creating Partnerships and Packaging Tourism Products

There are few collaborations and packaging possibilities in cultural heritage tourism, such as theatres and museums, cultural products by different types and packaging of cultural and non-culture tourism products like hotels, retails, and parks (Silberberg 1995).

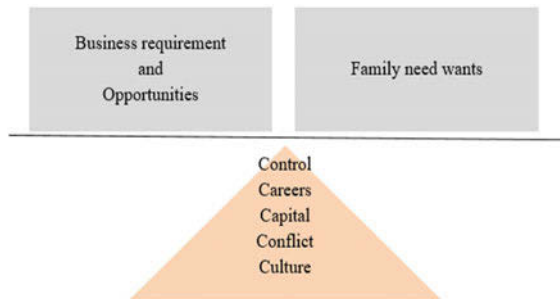
## 6 Strategic Planning for the Family Business

Strategic planning usually defines as profitable growth that develops by several business strategic aspects (Ward 1988). The human relationship with conflict, lack of trust, family relationship problems generally become a natural element (Star 2020). A family business has several issues and factors of failure. The first one is because of a lack of financial strength and staff.

Second, the failure of a family business lacks a conceptual planning framework to develop the future business strategy and planning. Thirdly, it is because of the conflict between sibling rivalry and generation succession (Ward 1988). There are several factors of several aspects of the failure from a family business that John L. Ward stated. There are several strategic plans to overcome the problem, which 1) Make it fair to control the family decision, 2) Rewarding the career based on the performance, 3) Creating the system efficiency to make the family member can reinvest for the business capital, 4) Addressing the conflict of the family business and development plan and 5) action using family value (family business culture) aspect in family relationships as shown in Fig. 6.

The main source of self-esteem is love and work. Life can achieve balance and satisfaction when love and work are balanced (Star 2020). The family and business systems are interrelated when the family business is established. These include the different approaches and business goals (including emotional concerns, family needs, and stability), business performance, business demands, and managing change. Family trust plays an important role in such a business because it has been a form of capital. The family-controlled company will value the trust and build a trusting foundation of their planning and management system. There are several suggestions to address family business failure, firstly the family’s commitment that

Fig. 6 The family business dilemma



**Table 2** Difficulties and suggested action steps

| Stakeholder        | Difficulties   | Suggestion Action Steps   |
|--------------------|--|---|
| Senior generation  | <ul style="list-style-type: none"> <li>• Doubts regarding the younger generation’s capabilities</li> <li>• Loss of enjoyment from day-to-day operations</li> <li>• Resistance to change in business direction or strategy</li> </ul> | <ul style="list-style-type: none"> <li>• Create meaningful career opportunities</li> <li>• Identify a future role that contributes to the firm</li> <li>• Participate in strategic planning</li> </ul>                    |
| Successors         | <ul style="list-style-type: none"> <li>• Concern about family expectations</li> <li>• Self-doubt about capabilities</li> <li>• Sharing power and multiple shareholders</li> </ul>  | <ul style="list-style-type: none"> <li>• Support family meetings to explore commitment and vision</li> <li>• Engage in management development activities</li> <li>• Create personal estate and financial plans</li> </ul> |
| Spouse             | <ul style="list-style-type: none"> <li>• Impact on marital relationships</li> <li>• Concern regarding financial security</li> </ul>  | <ul style="list-style-type: none"> <li>• Support a future lifestyle plan</li> <li>• Create personal estate and financial plans</li> </ul>   |
| Other Stakeholders | <ul style="list-style-type: none"> <li>• Loss of personal relationships</li> <li>• Concern over financial stability</li> </ul>   | <ul style="list-style-type: none"> <li>• Phase down involvement over time</li> <li>• Show confidence in your successor</li> </ul>   |

happened, including the interdependence of family and business planning. Ensure the participation and the performance of an obligation in business among the family business. The second is to appraise the company’s business health, which ensures the financial efficiency and productivity are revealed and provides the family is reinvesting sufficiently to help ensure a future family business is continuous. The third is identifying business alternatives that are possible business alternatives related to the geographical areas, the quality of services, and productivity enhancement. Some reveals need to be made to ensure the possibility of uniqueness or advantages (Ward 1988). A complex problem and suggested actions highlighted by R. Carlock & J. Ward can be a guideline for the family business that involves the phasing of the senior generation, successors, spouses and other stakeholders. Refer to Table 2 for the detailed description of the difficulties and the suggested action steps for the family business.

## 7 Governance’s Role in Family Businesses: Intent, Power and Output Navigation

Many successful, multi-generational family enterprises have responded to such challenges by creating good governance practices, principles, policies, and capacities. They recognise that the boardroom is a place to benefit from independent opinions from those with diverse experiences. This constant self-assessment might be the most critical dimension of good governance, particularly when all companies are forced

to make difficult decisions. The lingering nature of the current pandemic reinforces the importance of strong government. The concentration of decision making is one of the most prominent examples of how a lack of good governance could increase risk in family enterprises.

Additionally, families that struggle with or do not embrace governance principles may tend to ignore disruptions in the marketplace or minimise their significance, split into competing factions more intent on blaming than correcting, or take drastic actions without sufficient debate, reflection and objective input. Roles and decision rights crystallise around what is important to each family member, and they gain ownership over certain aspects of running the business.

Once these responsibilities are carved out, the family can devise policies and create forums to strengthen communication, aid collaboration and learning, and address differences and disputes.

## 8 Discussion

Recently, family businesses related to heritage tourism growth declined drastically due to the pandemic of COVID-19 since the end of the year 2000. Because of travel restrictions around the world, many tourists cancel their trips. For example, The Tourism, Arts and Culture Ministry (MOTAC) reported the losses suffered by tourism and culture industries in the country in the first half of 2000 estimated to reach RM45 billion (Star 2020). The most affected workforce in the heritage business-family based services sector are accommodation, food and beverages, arts, entertainment and recreation. To survive in businesses, the transformation of operations into digitalisation has been discussed around the world.

To stay relevant, 92% of respondents anticipate the family business to return to pre-pandemic growth rates in 2022 (Carlock and Ward 2001). Based on that survey, only 24% of Malaysian family businesses believe they have strong digital capabilities. Family businesses are encouraged to transform themselves digitally to increase their relevance in today's business climate. This transformation must come hand-in-hand with upskilling their workforce and align with the family's shared long-term vision and values. There is no option for accommodation (hotel, motel and homestay) and transportation (bicycle, boat, bus and van rent) since they depend on tourists' appearance on site. However, the tourism industry is expected to be the last to recover after the pandemic.

In this context, digitalisation is not the only solution in future. According to a study, Ismail et al. (2019) had revealed that family business might sustain due to intrinsic features (or so-called "resilient factors"). Even though the transgenerational industry is said to have a slow growth rate, the resilient can ensure the long-term viability of heritage tourism development. The enterprises should emphasise the value of the future generations, such as ownership, motivation, and adaptability in the family business process. Consequently, resilience is seen as encouraging sustainable tourism rather than two different approaches (Ismail et al. 2019). The socioemotional

wealth highlighted in Ismail et al. (2019) as intrinsic component features of family businesses leads to stability and sustainable tourism growth. The component features are a sense of belonging, family welfare priorities, construction of generation change, contextual embeddedness, attitude, informal decision making, and a friendly working environment. Planning a family business succession is a must to sustain and maintain a business based on heritage tourism in the future.

## 9 Conclusion

In general conclusion, this study focuses on business foundations, family business and heritage tourism products. Several factors contribute to successful business activity that is related to heritage tourism. The basic aspect of the development business foundation is leadership and innovation entrepreneurship thinking that can beat competitiveness challenges. The foundation of modern business concept creation is the industry collaboration model and the mental model to drive business survival change. The industry collaboration model is the expertise to use either the information system or the information technology. It is vital to connect the marketing to the public-the collaboration model related to data strategy perspective, market intelligence and references sites promotion or services. The mental model is more to face the business challenges that might happen. There are three aspects to adapt to the business challenges: 1) Creating and gaining more skill to increase and improve the business strategy and generate more value for the business, 2) Enhanced the awareness of creating the capital and creating the customers within the information ages and 3) Established clear objectives and concepts, strategic planning, management and preservation of assets, preparation for tourism, maintaining authenticity, effective marketing strategy, and creating partnerships and packaging tourism products.

Strategic planning for a family business is very important to face conflict in the family business or uncertain situation such as a pandemic, natural disaster and other. Creating an efficient system such as controlling the management system properly, rewarding the family business based on their career performance, managing the capital and reinvest, addressing the conflict among the family business and based on the family culture that addresses family value. The suggestion of strategic planning for the family business is to create meaningful career opportunities, identify future roles that can be improved in the business family, and participate in the strategic planning for the senior generation. Meanwhile, the phase of successors needs to support the family meeting, commit, and address the vision. Engage in management development activities and create personal estate and financial plans. To address the spouse scope for the suggested action plan, they need to support a future lifestyle plan and create personal estate and financial goals. In other stakeholders, they need to phase down the involvement over time and show the successor confidence.

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# An Exploratory Study on the Training Provided by HIE to the CBT Providers at Kg Sayap, Kota Belud Sabah, Malaysia.



Caroline Geetha , Rosle Mohidin , Lim Thien Sang ,  
Tini Maizura Mohtar , Kamarul Mizal Marzuki ,  
Azaze-Azizi Abdul Adis , and Raman Noordin 

**Abstract** The study aimed to identify the indicators to develop a sustainable tourism model for community-based tourism (CBT) in highlands based on socioeconomic elements along the west coast of Sabah. The development of the sustainable tourism model for CBT in highlands used the triangle sustainable model and triple bottom line approach. Both qualitative and quantitative approach was used to find the outcome of the study. The qualitative approach deals with the role of the primary education institution in providing the education for enhancing the CBT meanwhile the quantitative approach was aimed to measure the training provided by the institution of higher learning. The study revealed that the formal, informal, and non-formal education was able to prepare the younger generation to be the tourism ambassador of tourism in the village, but the effectiveness of the training modules conducted by the institution of higher learning was below satisfactory.

**Keywords** Borneo · Community-Based-Tourism (CBT) · Sustainable tourism

## 1 Introduction

Community-based tourism (CBT) is a way of sustainable tourism that allows the travellers to locally connect with the local communities. It is a tourism where the travellers are invited into the local's homes to experience their lifestyle, culture, beliefs, and norms. CBT was introduced to eradicate poverty in the rural area. In reality, CBT is the element of control and ownership. It is the tool for development. It is believed that CBT can contribute 30% to 90% of the GDP and employs almost 50% of the population. It is a solution to generate income for those who have poor material wealth but rich in culture and natural heritage. The income generated can only flow back to the community if CBT is implemented. If the income generated flows back to the foreign company or tour operators, there will be leakage in the

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C. Geetha · R. Mohidin (✉) · L. T. Sang · T. M. Mohtar · K. M. Marzuki · A.-A. A. Adis · R. Noordin  
Universiti Malaysia Sabah, Jalan UMS, 88400 Kota Kinabalu, Malaysia  
e-mail: [awgdin@ums.edu.my](mailto:awgdin@ums.edu.my)

local economy. Usually, community-based economy is conducted in a small scale, focused and with a close interaction with the local community. The local community has control over the resources used and the benefits obtained. CBT gives opportunities to skilled and unskilled labours. Since their outlay is minimum, income generated will stay in the family. In a CBT, a traveller can learn about the indigenous tourism product which consists of rituals, sacred places, living out of their land and also their handicraft. The income generated can be used to buy cows, lands, built houses while maintaining and sharing their culture. Unfortunately, CBT has its challenges too. The indigenous community has problem getting their start-up capital. They need to be developed in their business skills and be taught how to navigate government regulation.

Based on the triangle sustainability model, there are three main pillars in tourism, environment, economy and social. These elements are all integrated. A mechanism should be developed to integrate these elements with the practices of sustainable tourism in order to sustain both the income earned by the local community and also the environment as tourism service providers that creates economic values for its natural and cultural heritage. This model also supports the theory of Triple Bottom Line that claims an entrepreneur's goal should not only be profit orientated, but it should also be taking into account its positive and negative impact it gives to its community and environment from its business activities. Both the positive and negative impact is known as externalities. The externalities should be converted into numerical values and incorporated into the accounting system to decide the optimum output or services produced. This can avoid overuse of resources. Overuse of resources results to under production and overproduction. Thus, question arises on who or what is responsible in integrating the people and the planet to create profit or better known as positive externalities to both the counterparts, it is the role of the stakeholders like the local community, government through tourism board, issuing of licence to tour operators and guides, and the institution of higher learning in providing the knowledge and the training required by the local community.

The initial study on tourism was known as contemporary tourism. A contemporary tourism was keener in creating short term profit for the entrepreneurs. The entrepreneurs did not focus on the long-term relationship between their enterprise and environment. Long term relationship can only be achieved if the sustainability can be incorporated in tourism. The long-term relationship comes with the responsibility of utilizing the natural resources and to convert the natural resources as a sustainable capital to be used to provide more services. Here the tourism destination is the product. The tourism destination was chosen based on certain indicators like the facilities (amenities), ancillary (support) and accessibility (infrastructure). All the amenities are provided by the local community. The local community has converted their homes into a home stay; they have used the local organic ingredients to make local cuisines to be eaten by the visitors. The industry and the education institution of higher learning provides the support known as the ancillary meanwhile the accessibility of the tourist destination was provided by the government. All the three supporting pillars (amenities, ancillary and accessibility) are supported by the stakeholders of the industry. These pillars are the contributing factor in choosing

a tourist destination or attraction. The third pillar is the environment. Environment consists of biodiversity and the natural heritage in the environment. The environment would directly influence the choice of a tourism destination. The social aspect in influencing a tourism destination is culture. The uniqueness of the culture attracts tourism. The language, cuisine, arts and historical heritage comprise as culture. The benefits obtained from the choice of a tourism attraction or a destination is measured in terms of economic benefit. Economic benefit in terms of employability, increase in standard of living, profits as entrepreneurs. Based on the literature review, effort was made to transfer knowledge to the stakeholders of the industry, villagers, the institution of higher learning and the service providers in the hospitality industry.

An institution of higher learning plays an important role in developing a local community in providing a CBT. The role of the institution can be distinguished into seven important functions. The institution of higher learning should connect with the local's communities. The researchers in the institution should identify the information the locals would like to share and the support they need from the institution. This will enable the identification of tourism-based products at the tourism destination that can be highlighted to the travellers. The identification of the tourism products and its complementary products or service that can be offered should be discussed and decided to be offered together with the local communities. This will create the bond and the trust between the institution and the local communities. Second, the local communities will face challenges when dealing with travellers from different cultural backgrounds. Thus, the institution has a major role in training the local communities on how to communicate with the travellers. They should be trained on what to share and how to share and when to share the information with the travellers. Thus, training them to communicate requires them to speak English fluently. Guides who could speak English will be able to help to be the host to welcome and share information to the travellers in an enthusiastic manner. The communities should also be thought the importance of safety, either in preparing the food or their tour experience.

The local communities should be highlighted by the institution on what are considered safety measures, when it should be briefed to the travellers and not forgetting the importance of sanitization on the place and the environment. Last but not least the duration of the experience should be decided since CBT involved hands on experience. It requires the travellers to digest the intrinsic and extrinsic values of the cultural heritage as well as the natural heritage. Thus, the packaging of the tourism products or services and the appropriate pricing should be taught by the institution of higher learning. This will enable the local communities to be independent. They will have control and ownership of their cultural and natural heritage without the fear from being exploited by a third party.

The role of the institution of higher learning as a stakeholder can help the local communities to develop a sustainable CBT that can provide job opportunities, higher standard of living and also maintain their cultural and natural heritage. Therefore, a study was conducted based on several training modules designed by the institution of higher learning and the training was conducted by the instructors from the institution.

The exploratory study was aimed to identify the effectiveness of the training provided to the local community that has been providing CBT in a small scale.

## 2 Literature Review

Management practices for sustainable tourism is a mass tourism, it is not niche tourism. Sustainability standards refer to the monetary, environmental, and socio-cultural parts of tourism advancement and a suitable equalization need to be made between these three extents until sustainability in the long run can be maintain. There are a few characteristics that need to be fulfilled in sustainable tourism, firstly, ideal utilization of natural resources. Natural resources should be cared for and the heritage must be maintained. Secondly, the need to respect life and culture by preserving the language, living culture, authentic cuisine, and art. Finally, all stakeholders should benefit from economic advantages that be obtained through employment, poverty reduction and serving the community.

Based on the review it can be concluded that sustainability should move far away from just monetary benefits to sustainability. The methodology that should be apprehended should involve a comprehensive, integrated, taking into mind the social impartiality, environment security and monetary liveability. The investigation in creating a sustainable model should be an evolving model. No doubt initially the previous researchers claimed that there are three elements in sustainable tourism, which are economy, culture, and environment. But the studies by Maftuhah and Wirjodirdjo (2018) claimed otherwise, they claimed that there are five elements which cover tourism attraction, accessibility, amenity, ancillary and community involvement along with economy, social and environment.

Most of the studies have focused on the two elements which are environment and economy as the most important aspects that need to be considered when forming a sustainable tourism model. According to Cooper and Vargas (2004), some of the approaches only investigated one aspect either environment or economic sustainability as a whole. Cocklin (1995) finds this approach to be superficial and omit the role of social. This was supported by the lack of social impact that caused an impediment when there is a movement from sustainable principles to policy making. Meyer and Helfman (1993) also supports that the sustainable tourism model cannot be generalized but it should be adapted to suit the local environment. Delphi method was developed in order to present a set of sustainable tourism indicators. These indicators were developed by the World Tourism Organization.

Hart (1997) describes indicators as somethings that help you to understand where you are, which way you are going, and how far are you in what you want to be. Indicators for sustainable tourism can be distinguished into quantitative and qualitative. Quantitative data are found to be more rigorous and credible compared to qualitative data. List of indicators deem suitable is listed out. The response from the respondent using a 5-point Likert scale that range from Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree were used as indicators on the policy implication.

Even the resource-based view theory also guides in the formation of the conceptual framework only with two concepts, economy and social. No doubt the result has resulted in an interconnection between economy and environment. To analyse using this perspective is complex. Thus, an empirical approach is deemed suitable.

Unfortunately, the role played by the stakeholders are one of the important indicators for enhancing the sustainability of tourism especially CBT. One of the stakeholders that plays the most important role is the institution of higher learning that provides the education or knowledge needed to deliver the CBT effectively. The Organization for Economic Co-operation and Development (OECD) defines education as “organised and sustained communication designed to bring about learning” (2001). According to the OECD, learning is “taken as any change in behaviour, information, knowledge, understanding, attitudes, skills, or capabilities which can be retained and cannot be ascribed to physical growth or to the development of inherited behaviour patterns” (2001). Any experience that has a formative effect on the perception may be considered as educational. The OECD introduces three kinds of education: formal, informal, and non-formal education. Formal education refers to education and training offered in an educational institution or workplace, which learners participate intentionally. It is organized and structured with learning objectives. Informal education is obtained by engaging institute of higher learning, tourism agencies and players in the tourism industries. Non-formal education is in between the formal and the informal education. Non-formal education has somewhat organized and learning informal objectives. It is not strictly defined, and it is extremely flexible.

### **3 Methodology**

#### ***3.1 Location of Study***

Kampung Sayap (Kg. Sayap) is in Kota Belud Sabah, an hour and half drive from the capital city of Kota Kinabalu, Sabah. It is situated at the western side of the Mount Kinabalu. It is located at the Sabah-Parks Sayap sub-station, the very end village in the Kota Belud area. The village was also known as Minangkob, meaning “the valley” in Dusun language. However, miscommunication between the villagers and the missionary caused it to be called Sahap, the dead leaf, which then turned to Sayap.

#### ***3.2 Research Design***

The research conducted in Kampung Sayap was both qualitative as well as quantitative. The qualitative aspects deal with the observation on the existing effort taken

by the local community to impart formal and informal education about tourism in the village. The quantitative aspect deals the effectiveness of providing informal education through training modules offered by the institution of higher learning.

The research team from the Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah decided some essential training needed to develop the CBT for the local communities. The training modules carried out were preparation of local cuisine using the agricultural products cultivated in the village, food safety, identifying and educating the unique flora and fauna species in Kampung Sayap, designing the marketing package in promoting Kampung Sayap as an Edu-tourism and Eco-tourism destination, communication skills, how to convert their homes to homestay and finally financial management skills. These preliminary modules were conducted in a period of a week during the month of August 2019. After providing the training, a duration of 12 months was given for the participants to implement what they have learned during the training. In August 2020, questionnaires were distributed to evaluate the effectiveness on the knowledge transferred by the institution in developing the CBT.

The questionnaire was divided into three sections. Section a is the demographic information such as age and gender of the respondents. Based on the demographic analysis, 34 people attended the training. Those who attended the training provided some form of CBT activities like homestay, guided walking or hiking, bird watching handcraft and painting. One participant was less than 30 years old, around 25 participants were between the age of 30 to 50, only 8 participants were older than 50 years old. In addition, it also revealed that more than 50 percent of the respondents were female. Section B quested to identify the effectiveness of the training in terms of location, trainers or instructor's delivery skills, the duration of the training and its frequency. The response was measured 5-Likert Scale which 1 represents strongly disagree, 2 is disagree, 3 showed a neutral stand, 4 is agree and 5 represents strongly disagree.

## **4 Research Findings**

### ***4.1 The Role of S.K. Sayap, the Primary School in the Village***

The observation revealed that Kg. Sayap begin to engage in Eco-tourism which offers environmental experience and homestay program to tourists since 2016. According to Mr. Kingfier Maisin, one of the village champion of Kg. Sayap, their vision was to make sure that the nature treasures and environment of this area to be known to the world and to boost up the economy of the local community as well as the country itself (personal communication, February 2017). The mission of Kg. Sayap's tourism was to make Sekolah Kebangsaan Sayap (S.K. Sayap), the only primary school in the village, to be the leading school promoting Edu-tourism. The purpose of Edu-tourism was introduced in Kg. Sayap by S.K Sayap is to provide experience in

tourism catered for all age groups. Among others, it exposes students about biodiversity and ecosystem practically which can boost their motivation towards loving and playing a role as a manager for the environment. In addition, it will also develop communication, leadership as well as language skills. As part of their effort to boost Edu-tourism, S.K. Sayap also encourages the involvement of local community, institution of higher learning and other relevant agencies to be the stakeholders of this hub.

Eco-tourism becoming a major mode of tourism in Kg. Sayap. The influence is seen both in cultivating the level of education and creating new economic prospects by creating add on social value. In addition, educational tourism will provide education for all people of Kg Sayap, without age differences as the platform for lifelong learning. One of the important aspects in Edu-tourism is converting the tourism activities at the community destination to become the contents of education; for example, sightseeing tours, bird watching, hiking, jungle tracking and mountain climbing, exploring, and learning the flora and fauna surrounding the village.

In Kg. Sayap, the community takes advantage of the facilities available in the formal education system. The Parents and Teachers Association initiated few tourism-based enabler projects such as the English Tea House. The English Tea House serves local delicacy like serving tea with boiled tapioca, traditionally prepared. The utensils used to serve the visitors also involve nature like cups made of bamboos and plate made out of banana leaves.

In addition, active involvement of teachers in using nature to complement their teaching also makes formal education exciting in Kg. Sayap. The teaching of science in S. Sayap is embedded with the exposure to flora and fauna. Similarly, new tourism attractions are also created around the school compound, like the “Sylap Potimburuluh”, literally means upside down bamboo hut. All these efforts taken by the Parents Teachers Association also aims to instil awareness on tourism by appointing students as mini ambassador of tourism.

The non-formal education which is in between the formal and the informal education was the cultural heritage that was brought as an identity of the local community themselves. They claim the ownership for the heritage. Kg. Sayap students are constantly exposed about their culture in the form of traditional dance, costume, musical instruments, and traditional games. This enables these children to interpret about their village and culture bravely and knowledgeably to the tourists and visitors.

The vision of the Malaysian education system is to develop knowledgeable, skilled, creative, and innovative human capital. The villagers themselves formed a Focus Group Hiking Team. The Focus Group Hiking Team (FGHT) in Kg. Sayap is the focus group formed specially for the development of tourism industry in Kg. Sayap. FGHT members entered training and classes provided by government and non-government to improve their knowledge and skills and shared the knowledge with the young generation. Early exposure to the younger generation will nurture good quality of human talent in the kampong. To enhance the young talent learning experience English classes were held free by the Non-Governmental Organisation (NGO's) to polish the student's communication skill as tour guide to the tourists coming to their village. In other ways, the community is utilizing the expertise of the



adult male as tour guide and the younger talent as tourist interpreter or preferably known as tourist ambassadors.

All these efforts taken by the Kg. Sayap villagers together with its stakeholders have increased the quality of life. This can be proven based on their achievement in social aspects such as their improvement in their ranking on the achievement in UPSR (Top 10 out of 58 schools in the district), literacy in numeracy (Ranked No. 1 at the district level) and English (Ranked 4 in the district level).

#### ***4.2 The Role of Universiti Malaysia Sabah as the Institution of Higher Learning (IHL)***

First, the effectiveness of the training modules in terms of location, trainer's duration the module was enquired using questionnaire and its responses were measured using a 5-Likert scale too. All the items showed a grade point average of less than 4 where duration and frequency gave the highest level of effectiveness of 3.85. The villagers claim that no doubt the training given increased their ability in terms of skills and also increased their level of income, but the increase was not a significant amount. The villagers who provided CBT found there was an increase of an average RM200. Moreover, the increase was not consistent because the arrivals of the tourist was seasonal. Thus, their increase in the standard of living is not consistent. The lowest rate of effectiveness was given for the trainers. This was due to the delivery of the trainers were found to be more theoretical rather than practical. Even though the training was conducted in the S.K. Kampung Sayap, the villagers wanted a premise outside the village which was more conducive.

The effectiveness of the training modules indicated an average score of less than 4 in terms of their satisfaction. The training has enabled them to use their skills in business, increase their level of income as well as to identify and understand the knowledge on flora and fauna which could generate income for them through CBT ranged between 3.79 to 3.91. (Refer to Table 1). The villagers conveyed their desire to have more training and higher frequencies in the future. They wanted the training to be conducted at least three months once. They also express their intention to learn handicraft and to play traditional music to entertain the local and foreign tourist. (Refer to Table 2). The tour guides were concern that even though they were

**Table 1** Perceived training effectiveness by the IHL on the local community in Kampung Sayap

| Effectiveness of the Training  | Average Score |
|--|---------------|
| Ability to use the skills in their business  | 3.91          |
| Ability to increase their income   | 3.84          |
| Ability to understand that the unique flora and fauna in Kampung Sayap need to be protected and can generate income through ecotourism | 3.79          |

**Table 2** Training needs by the villagers in Kampung Sayap

| Future Training Needs Requested By The Villagers | Average Score |
|--|---------------|
| The need for more training                       | 3.85          |
| Frequency of training should be increased        | 3.82          |
| The duration for each training is appropriate    | 3.76          |

provided the training to understand the flora and fauna, but they cannot obtain a tour guide license because some of them do not have school leaving certificate.

## 5 Conclusion

The study aims to measure the role of the institution of learning whether it is lower level or higher level in providing the training required to conduct a CBT for the local community that lives in the highlands along the west coast of Sabah. The study used both the qualitative as well as the quantitative approach. The qualitative approach was based on the interview conducted with the teachers of the primary school located in the Kampung Sayap, called S.K. Sayap. The findings revealed that the educators played an important role in converting the primary school children to be a travel ambassador for the village. The students were educated on the cultural heritage of the local community on the rituals, beliefs, norms, sacred locations, and history of the village. A dance troupe is also formed to show the local dance, their outfits as well as their musical instruments. The students are thought about the unique flora and fauna through their biodiversity lessons. Thus, the role of the primary level of institution of education complements the need of the CBT effectively.

The effort made by the institution of higher learning was aimed at the CBT operators in the local community. The institution provided various training from house-keeping, marketing, financial management skills, food safety, preparation of local cuisine and finally English for tourism. The courses were conducted in a week. The effectiveness of the course was measured using a Likert scale. This involved a quantitative approach. The findings revealed the score ranges below satisfactory level. The lowest score was given to the trainers. The CBT providers also wanted a higher frequency in training and the module should be more practical and not theoretical.

Thus, it can be concluded that the institution of higher learning should increase their effectiveness by looking into the strength of the community rather than what is wrong. Most of the failures in the training for tourism is that we fail to look at the strength of the local before designing the module appropriate for them. A standardized module will fail to meet the objectives. Thus, adaptation should be done to suit the community in highlands. By modifying the module, the effectiveness can be enhanced. The institution of higher learning should also be the bridge to fill up the gap or the challenges faced by the community like helping the local tour guides to

obtain the licence especially for those who do not have the school leaving certificates. In addition, enhancement of the marketing channel to avoid making tourism seasonal.

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# Formulating Physical Exterior Design Factors in Creating Exciting Retail Stores in Malaysia



Mohd Azri Mohd Jain Noordin , Mohammad Rusdi Mohd Nasir ,  
Ismi Luqman Hamadi Ibrahim, Muhammad Rizal Khairuddin,  
and Azizi Bahauddin 

**Abstract** The Covid-19 outbreak in 2020 has caused hard time for the physical retail store. As to recovery, to increase profits retailer need to look for alternative way to improve shopping value. Past studies had identified several customers-oriented on store environment attributes impact consumers perception. However, until today there are no specific guidelines available regarding creating a good store design mainly after the post-pandemic on the retail stores environment context in Malaysia. Therefore, the aim of this study is to identify and propose the influences of various store environment physical exterior design factors in retail stores and study their effect on customers behavior. The study applied qualitative research methodology a case study which employed observation and interviews, on a selected fashion retail store.

The results shows that behavior intentions among customers included store choice and purchasing can be induced by creating unique shopping experiences with the help of store environment physical exterior design factors. Therefore, to give little attention to the store environment physical exterior design elements by the retails owner are important without set aside the safety SOP to stay advantages in today's competitive market.

**Keywords** Retail design · Exterior design elements · Shopping experience · Malaysia

## 1 Introduction

Over the past few month due to Covid-19 pandemic, the physical retail industry has dealing with harsh obstacle as part of area being placed under lockdown, as

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M. A. M. J. Noordin (✉) · M. R. M. Nasir · I. L. H. Ibrahim · M. R. Khairuddin  
Faculty of Architecture and Ekistics, Universiti Malaysia Kelantan, Karung Berkunci 01,  
16300 Bachok, Kelantan, Malaysia  
e-mail: [Azri.mjn@umk.edu.my](mailto:Azri.mjn@umk.edu.my)

A. Bahauddin  
School of Housing, Building and Planning Universiti Sains Malaysia, USM, 11800 Gelugor,  
Penang, Malaysia

local governments enforce quarantine measure and restrict movement. Many fashion retailers had temporarily closed their store. Therefore, to recover their profits, retailers have to incorporate alternative shopping strategies that can act as point of difference and influences customer buying intention without neglecting the health safety SOP by the government.

Past studies has found important key roles for store environment on customer behavior (Baker et al. 2002; Bell and Ternus 2006; Banat and Wandebori 2012; Hasan and Mishra 2015; Hosseini and Jayashree 2014). Through physical store environment attributes, it can help to create the positive customers image that lead to preferred store choices and successful sales.

It is therefore important for retailers to create a pleasurable shopping environment that will stimulate and encourage sales through determine how these store environment physical design elements as these are the most effective use in relation to the store brand and merchandises offer.

Yet, the information on creating a good store environment is still little and undetermined especially in the fashion retail context in Malaysia. This left the existing local retails hard time to compete as poses questions regarding the value of the store design strategies.

Therefore, this calls for a greater understanding in a holistic view of the store environment exterior design factors in fashion retail stores towards customer behavior.

## 2 Literature Review

According to past literatures, there are five strongly influences physical exterior design elements in creating pleasant store design shopping experience (Bitner 1992; Banat and Wandebori 2012; Hasan and Mishra 2015; Hosseini and Jayashree 2014; Hashim et al. 2014). Exterior elements are referred to the storefront, store entrance, window displays, building architecture, the location of the store and the surrounding area (Turley and Milliman 2000; Cornelius et al. 2010). In order for retail store to be successful, customers must be encouraged inside thus the exterior elements of the store must be pleasing to induce approach behaviours (Turley and Milliman 2000; Aishah and Azlainei 2011). There is a relationship between exterior variables environment and purchasing behaviour (Pan et al. 2008; Odeh and As'ad 2014; Osman et al. 2014; Singh et al. 2014; Suki 2011; Wong et al. 2012). A 'spillover' effect onto the store image can be shown by the storefront display. Customers perceiving to more 'sophisticated', 'modern', and 'trendy' store through the innovative exterior displays such as column stands, standing flags, window display, and signage.

There are many store environment physical exterior design elements can affect customer's perceptions on retails choice and leads to increase store performance. However due to after the post-pandemic, few design elements need to be revise in order to comply to the new regulation stated by the government. Figure 1 shows the

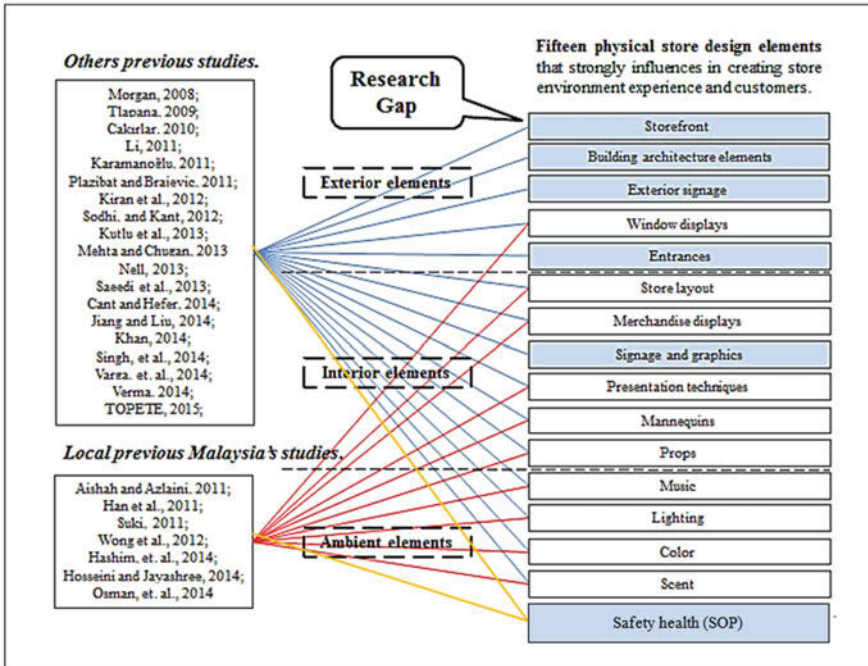


Fig. 1 Summary gaps between the past studies on physical exterior store design elements

summary gaps between the local Malaysia’s and foreign studies towards the physical exterior store design elements.

### 2.1 Theoretical Models

According to the stated information above, this framework contained elements of the store environment physical exterior design influences. The aim of this study is to look into how these fashion retail physical exterior design elements affects store environment and shopping experience as well its impact on customer perception. Lastly to documents a holistic view of important these attributes on produce a good fashion shopping environment design in Malaysia’s context. Figure 2 shows the proposed framework serves as foundation to this research.



**Fig. 2** Model connecting store environment safety and physical design attributes to personal perception

### 3 Methodology

The research design employed a case study method which was divided into two parts, the first part was observation in nature, second part was managerial interview descriptive. The data were collected within the renowned fashion retail brand which comply to the current post-pandemic issued health safety (SOP); Gucci fashion store in Pavilion Mall, Kuala Lumpur were observed and interviewed to seek and find the impact of whole view of the store environment physical exterior design factors in terms of creating a good fashion store shopping experience.

## 4 Results and Discussions

### 4.1 Observation

From the observation it can be seen that Gucci in Pavilion flagship store in Pavilion Mall, Kuala Lumpur showcase its unique shopping experience through outstanding quality of products, comfortable, inviting, and enjoyable environments includes premium services within the comply of all the post-pandemic health safety (SOP) issued by the government.

To lure shoppers into the store they provide a deep impression and impact through the store exterior elements; storefront, signage and window display were well-arranged and frequently updating with fresh new display trend of merchandise, mannequin, props and graphics. A pleasant good simple façade with easy noticeable logo on each of the store entrances. All the merchandise display was spaces neatly setup without to packed. With the idea of “clear merchandise, less cram” has positively attract the eye-catching of the customers who passerby.

Furthermore, the store provides neat and proper health safety checked point counter equipped with stand auto thermometer and hand sanitizer as well as face mask

at every ground entrance with the assist of staff member. Customer seen smoothly checked-in their health issued either manually or via online without crowded the entrances. All the store glass windows and door handle were regularly sanitized by the staff to keep the store clean and safe.

These shows that the evaluations of exterior health safety and design had designs had a strong relationship with the store brand characteristics experience and effect customer behavior.

### 4.2 Interview

According to the interviews, it shows that the Gucci Pavilion Kuala Lumpur main goal was on creating a more health safety, memorable and attractive shopping experience that attracted the customers.

**Table 1** Summary of respondents perception regarding influences health safety and physical exterior store design elements on evoke shopping experience

|  | Very Unimportant | Unimportant | Neither Important Nor Unimportant | Important        | Very Important   |
|--|------------------|-------------|-----------------------------------|------------------|------------------|
| <b>Exterior Design</b>   |                  |             |                                   |                  |                  |
| How important is the retail storefront (Façade)?                         | 0.00 (0)         | 0.00 (0)    | 0.00 (0)                          | 0.00 (0)         | <b>100 (3)</b>   |
| How important is the building architectural style of the store?          | 0.00 (0)         | 0.00 (0)    | 33.33 (1)                         | <b>66.66 (2)</b> | 0.00 (0)         |
| How important is the store’s exterior signage and logo?                  | 0.00 (0)         | 0.00 (0)    | 0.00 (0)                          | 0.00 (0)         | <b>100 (3)</b>   |
| How important is the interesting/inspiring store display windows?        | 0.00 (0)         | 0.00 (0)    | 0.00 (0)                          | 0.00 (0)         | <b>100 (3)</b>   |
| How important is the store image of the display windows?                 | 0.00 (0)         | 0.00 (0)    | 0.00 (0)                          | 0.00 (0)         | <b>100 (3)</b>   |
| How important is the merchandise presented in the store display windows? | 0.00 (0)         | 0.00 (0)    | 0.00 (0)                          | 0.00 (0)         | <b>100 (3)</b>   |
| How important is the entrance of the store?                              | 0.00 (0)         | 0.00 (0)    | 1.67 (2)                          | 33.33 (1)        | <b>66.66 (2)</b> |



Table 1 shows the importantness of each of the physical exterior store design elements by the respondents. Through the conversation, the Gucci pavilion customers were provided with a comfort stage behind the storefront through its well-setup of store physical exterior design elements. Gucci creates its unique experience by applying evoked emotions and other sensations through its engaging window display, interactive merchandise displays, richness of themed presentation and pleasant store ambient elements.

The result from the interviews found that today's new norm post-pandemic health safety (SOP) and physical exterior design elements have a highly significant impact on brand shopping experience and customer intentions too.

## 5 Conclusion

According to the findings above, customer perception outcomes towards store selections and purchasing can be influenced by the physical exterior design elements and the adaptation to today's new norm post-pandemic health safety (SOP).

This is shown by the Gucci store Pavilion Kuala Lumpur which offered a storefront shopping experience to its customers. Presented above gave a very important influence to the exterior store's unique and sophisticated environment. These included the offering of nice architectural, clear window display, well-ordered layout and not over-packed visual merchandise, and theme.

### 5.1 Recommendations

It is important for retailers to take into consideration for the recovery post-pandemic that could help improve if needed. The suggestions of this report are as follows:

- Physical exterior design factors in creating exciting retail stores in Malaysia

The first recommendation to retailers was important to create a unique and innovative retail storefront and entrance either by implementing building architectural elements which can provide better image valuations and influence customer judgment about the store's offer.

Retailers also need to ensure the outside signs and logo are attractive and easy to be noticeable. Furthermore, retailers need to set up a good and appealing window display setting as it would capture the attention and impact customer purchase decision. Remember, "clear merchandise, less cram".

Retailers also need to provide well-organized health safety check-in counters near the store entrance as required in today's new norm after-pandemic by the government. Provide smooth checked-in health issued is a must. All touchable items such as doors, handles and door glass as well as window glass need to be cleaned and sanitized frequently.

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# **Education Management, Technology, Smart Universities and Covid-19 Impact**

# Technological Entrepreneurship for University Research Outcomes



**Mohd Zulkifli Muhammad** , **Tamrin Amboala, Dzul kifli Mukhtar, Mahathir Muhamad, Muhammad Naqib Mat Yunoh, Mohd Fahmi Ghazali, and Abd Aziz Mat Hassan**

**Abstract** Commercialization of research by academic entrepreneurs have been recognized as an important driving force for technology transfer and wealth creation yet the level of success of commercialization of inventions (innovations) for IT products from higher institution to industry is questionable. There is a paucity of agreed commercialization in terms of execution processes to support inventions of prototypes and products moving from laboratories to the right market. This research aims to investigate the commercialization of research outcomes for IT products from the research centers to facilitate the commercialization objective. The analysis is carried out based on selective case studies in the technology and science park with venture capitalist and firms from industry in the commercialization program engagement. The commercialization of technology and products are investigated based on resource based perspective and dynamic capabilities based on selected case studies. The research outcomes are expected to offer a research commercialization model and practical contribution for successful commercialization and licensing among academics' entrepreneurs.

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M. Z. Muhammad (✉) · D. Mukhtar · M. Muhamad · M. N. M. Yunoh · A. A. M. Hassan  
Universiti Malaysia Kelantan, Jalan Pengkalan Chepa, 16100 Kota Bharu, Kelantan, Malaysia  
e-mail: [zulkifli.m@umk.edu.my](mailto:zulkifli.m@umk.edu.my)

D. Mukhtar  
e-mail: [dzulkifli@umk.edu.my](mailto:dzulkifli@umk.edu.my)

M. Muhamad  
e-mail: [mahathir.m@umk.edu.my](mailto:mahathir.m@umk.edu.my)

M. N. M. Yunoh  
e-mail: [naqib@umk.edu.my](mailto:naqib@umk.edu.my)

A. A. M. Hassan  
e-mail: [abdaziz.mh@umk.edu.my](mailto:abdaziz.mh@umk.edu.my)

T. Amboala  
Faculty of Computing and Informatics, Universiti Malaysia Sabah, 87000 Labuan, Malaysia

M. F. Ghazali  
Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia  
e-mail: [fahmi@ukm.edu.my](mailto:fahmi@ukm.edu.my)

**Keywords** Technological entrepreneurship · IT/IS products · Research outcomes

## 1 Introduction

Entrepreneurship is described as the ability to associate all activities in order to gain profit and wealth from labor, land, capital (Berger, von Briel Davidsson and Kuckertz 2021; Alvarez and Barney 2020) and recently from knowledge and technology (Gedeon 2010). The entrepreneurial qualities of academia could be a driving force towards economic development through job creations and new ventures (Täks et al. 2015). However, there is currently no consistent mechanism for tracking the impact of commercialization although there are significant flow of scientific knowledge sharing between universities and academia (Berger et al. 2021; Rubin, Aas and Stead 2015). The personal attributes of entrepreneurs include autonomy and independence, creativity, moderate and calculated risk taking, drive and determination towards success (Berglund, Bousfiha and Mansoori 2020; Ajagbe, Isiyawe, Ogbari and Sholanke 2015). What is common among all references listed above are the association of risk or the ability of the entrepreneurs to take risk by exploiting those resources (Gedeon 2010; Täks, Tynjälä and Kukemelk 2015; Ajagbe et al. 2015). The reward for risk taking definition can be traced way back in the twentieth century Risk Theory (Gedeon 2010). This research addresses the importance of entrepreneurship qualities such as risk taking and capabilities in managing the resources coupled with the scientific knowledge to commercialize the innovations successfully (Berger et al. 2021).

The definitions of entrepreneurship evolve and widely applied into that academia who actively engaged both in research and commercialization of their innovations (inventions) (Mowery and Shane 2002; Olanrewaju, Hossain and Whiteside 2020; Siegel, Waldman, Atwater and Link 2004; Wright, Vohora and Lockett 2004). Academic entrepreneurship can be defined as the leadership process of creating value through acts of organizational creation, renewal or innovation that occurs within or outside the university that results in research and technology commercialization based on case studies in MIT University (Mowery and Shane 2002).

Unlike many previous literature, this article focus more on academic entrepreneurial characteristic rather than specific gender or (Aminova, Mareef and Machado 2020; Gholami and Al Tahoo 2021). This article seek insights for processes and activities that occur at the level of individuals or groups of individuals acting independently or as part of faculty or university systems, that results and creates new organizations, or initiate innovation within the university (Wright et al. 2004; Minguillo and Thelwall 2015). Value from academic entrepreneurship is achieved through the integration of scientific activities, academic activities and commercialization activities (Berglund et al. 2020; Siegel et al. 2004; Yusof, Siddiq and Nor 2009).

This research investigates case studies on how higher education institutions develop potential Intellectual Properties (IP) for commercialization and spin-offs.

As the number of patents granted do not reflect economic return and wealth generation for successful entrepreneurship (Berger et al. 2021; Henry, Hill and Leitch 2005). The inability of Intellectual Properties to generate economic return give an impression of universities ability to increase the number of IP however fails in the commercialization. Hence, further research is significant to investigate surrounding issues in the process in order to bridge the gaps between the number of Intellectual Properties and the commercialization rate. With regards to the commercialization of Intellectual Properties in university academics play their roles to ensure the innovations succeed which will complement the paucity in the literature (Berglund et al. 2020; Gedeon 2010). The research findings provide a guideline model for technology commercialization implementation in universities.

## 2 Literature Review

Rubin et al. (2015) who conducted studies research commercialization on technological business incubator program in both Australia and Israel proposed a model that comprises the interrelationships among three main stakeholders that include the:

- 1) Technological Knowledge Bearer (inventors, universities and etc.)
- 2) Market Knowledge Bearer
- 3) Financial Knowledge Bearer

The interaction, communications and collaborations of stakeholders drive the knowledge flow in technological business incubators. The research hypothesized that knowledge flow become a catalyst for the commercialization of universities' innovations (Rubin et al. 2015).

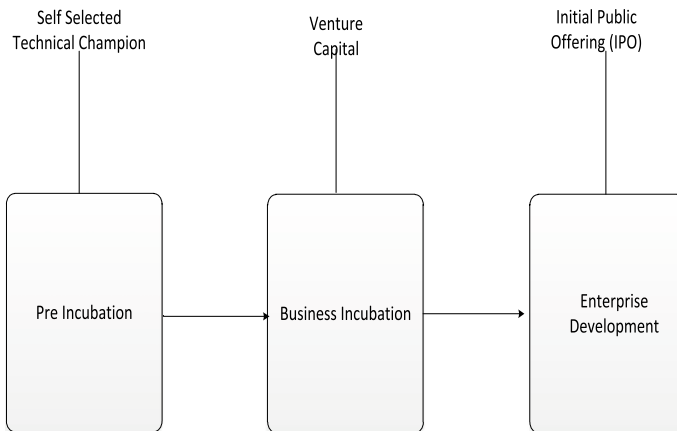
However, despite the fact that there is evidence of significant knowledge flow between stakeholders (Rubin et al. 2015) the ineffective and inefficient commercialization program might not be actively contributing to university technology transfer but rather the universities' resources. Rubin et al. (2015) estimates that 75% of university inventions and patents are not licensed at all. This poses a greater challenge for the inventors and innovators for commercialization of the Higher Education (HE) products as this maybe drag the journey towards commercialization long and fraught with problems (Fini, Rasmussen, Wiklund and Wright 2019).

Moreover, as stated by Markman et al. (2005) the relationship between universities (via the technology transfer office) with new venture creations and the commercialization program (science park) is poorly understood. More research is needed to understand the challenges of the entrepreneurs particularly on their ability to carry out the invention (knowledge transfer) from the university and their ability to sell off their inventions farther beyond the proof of concepts and prototype phase.

There is no evidence that university patenting licensing is profitable although a small number of them do succeed in attracting substantial additional revenues. The Intellectual Properties research in selected universities in five European countries in Germany, Finland, Belgium, France and Italy compares that unlike US, scientific

discoveries are too pre mature for commercialization. The findings are generalized across all disciplines and in different technology fields. In other words, there is a huge gap between scientific discoveries and actual commercialization initiatives. In addition, the research output does not reach the same audience in Europe as in US. This finding raises challenges to fill the gap to improve the communication between the academia and the industry (Munari and Toschi 2021).

The commercialization of research from developed in universities and research institute explains the characteristics, roles and functions with regards to university-industry commercialization. Siegel et al. (2004) map the process of commercialization as which begins from scientific discovery towards negotiations and licensing. The process flow presented by Siegel et al. (2004) is quite comprehensive and has similarities with the generic process below suggested by Commonwealth Scientific and Industrial Research Organization (CSIRO) - the largest Australia national research agency (Battaglia, Paolucci and Ughetto 2021).



Generic Process Propose By CSIRO for new Venture Capital (Upstill & Symington 2002)

The innovation first starts at the research center before the venture capital engagement in the business incubation. The commercialization proceeds to the third phase for Initial Public Offering (IPO) in the Enterprise Development phase for further growth and exploit the technology.

However, being the Australia greatest research organization with annual budget of some US\$700 million does not spare CSIRO from issues in commercializing their research. As stated by Thorburn (2007) that the business unit which responsible for commercialization do not have the expertise to ensure the commercial opportunities are fully exploited. The commercializing issue highlighted the importance of networking in determining the commercializing success. The commercializing issues of CSIRO is an evidence that incorporating market capabilities and expertise

into the technology through engagement and collaboration with external entity are crucial components that need to be addressed for successful research commercialization (Battaglia et al. 2021; Thorburn 2007).

Moreover, the research conducted in five research universities in US do not prove that the transfer office (business unit) roles play significantly in commercialization success. In many cases the commercialization success is determined by the individual factors of the academic scientist (Wu et al. 2015) and the business entities (firm/entrepreneurs) from the industry (Munari and Toschi 2021; Wu et al. 2015; Markman et al. 2005). The TTO merely is a management entity providing paper works and documentation and an intermediary between the researchers and the firms from the industry. The transfer office only involves mainly during the licensing and negotiation stage before the product launch in the market (Battaglia et al. 2021; Siegel et al. 2004).

A part from market channel, the industry players (VC/firms) offer more sustainable long term future funding resource than Federal Government. National ICT Australia (NICTA) for example, upon receiving declining funding from the government has established partnership models with industry and research from non-government. This is crucial in order to continue NICTA's record of research excellence and wealth creation in the future (Seneviratne and Percival 2005). Since this trend continues, this research therefore attempts to investigate the VC/firms engagement in research commercialization (Munari and Toschi 2021).

The literature above is evidence that commercialization efforts must be concentrated to incorporate the academia and the business entities such as venture capitalist/firms and how to facilitate processes and activities. Unlike Siegel et al. (2004), this research focus on the commercialization process of the innovations (inventions) in fulfilling both technical and market requirements as suggested by Maine and Garnsey (2006). This is important as technology advancement alone do not guarantee the innovations acceptance (Wright et al. 2004). This research seeks further insight how the inventor or the academia entrepreneurs presents the inventions and collaborate with the industry to fulfill the market requirements. The activities encompass all processes involved in the recognition of needs or potential market for a university product. On the other hand, it involves technical knowledge, which generally available as results of research activities in the universities (Maine and Garnsey 2006). However more often than not the new scientific discoveries for certain reason fail to penetrate the market due to the inability of the researcher tailor and match the inventions according to the market or industry requirements (Woltjer, Van Galen and Logatcheva 2021). All these activities normally take place in the research institute or university technology parks. Experimental development and design, trial production and marketing involve a process of 'matching' the technical possibilities and the market (Maine and Garnsey 2006).



The HEs research commercialization adapt the major processes modeled by Siegel et al. (2004) and CSIRO to shed lights differences and similarities in different context as a comparative research. However, from the institutional perspective the entire process can also be explained thorough the lens of Institutional Theory (Wu et al. 2015; D'Este and Perkmann 2011). According to this theory, institutional rules function as natural or social phenomenon which organizations incorporate, gaining legitimacy, resources, stability, and enhanced survival prospects (Shoib, Nandhakumar and Currie 2009).

Rubin (2015) highlighted that the objectives research commercialization is mainly focused on entrepreneurship development with the assistance of the venture capitalist/firms as facilitators in order to benefit the graduates and the university indirectly from royalties of licensing. (Rubin et al. 2015). To support Higher Education (HE) commercialization by allocating resources is crucial. The HE supports comes from various angles in order to create sufficient resources and conducive environment for commercialization (Ab Aziz 2011). This contributes to a technology-entrepreneurial conducive ecosystem which consists of industry market, funding agencies, and venture capitalist/firms, consultants for research-development-commercialization and HEs as a sharing knowledge platform. The incubator program provides facilitation to identify potential innovative HE products that can be nurtured into real commercial enterprises. The establishment and formation of the commercialization initiatives are meant to boast the university technology commercialization (Munari and Toschi 2021).

HE backed incubators have a sound background in providing infrastructure and facilitation, such as, human expertise, funding, location, to produce innovation and commercialization enhancement opportunities (Chandra and Silva 2012). However, extended research is required to investigate the utmost goal of commercialization if there are really materialized to shed lights the effectiveness of this program. The commercialization programs are the ideal scenario where entrepreneurs are encouraged to access the innovations and should have pushed (pull) to the industry (Rubin et al. 2015). The processes explain how to facilitate access and sell the university artifacts, before matching the entrepreneurs and venture capitalist/firms with the inventor. Next, an agreement of profit sharing among inventors (innovators) – entrepreneur and venture capitalist/firms for commercialization is decided (Rubin et al. 2015). Another literature by D'Este and Perkmann (2011) collected from physical and engineering science faculty in UK universities shows mixed result pertaining individual academic entrepreneurs with regards to attitudes towards commercialization. The result shows that although attitudes towards entrepreneurship and commercialization are positive among academia, the attitudes do not translate into real and actual commercialization engagement and success. This scenario adds more interesting research questions on motivations for commercialization, infrastructure, commercialization process and any possible factors that lead to commercialization (Ratinho, Amezcua, Honig and Zeng 2020). This finding strengthens the need for further research to shed the lights of dynamic capabilities (Eisenhardt and Martin 2000) and the capacity for research commercialization. Jeremy (2005) categorizes these factors as;

1. Capabilities as which are intangible factor and processes
2. Capacity as tangible resources (infrastructure and etc.)

Both combination of factors above is crucial for innovations (inventions) that contribute to university commercialization success (Jeremy 2005).

They are different types of spin-offs model may be attributed to differences in the structure for technology transfer and commercialization at universities' incubators which are consist of newly developed firms from the derived technologies (Ab Aziz, Harris and Norhashim 2011; Wright et al. 2004; Wu, Welch and Huang 2015). The technology incubator financial grant and supports are received from the universities or external funding entities from the industry (Ambos et al. 2008; Maine 2006; Ratinho et al. 2020; Rubin 2015).

However, academics involvements in the spin-offs venture capitalist/firm companies are not well described. The academic involvement is definitely very different from the research and development phase which are merely academic exercises (Wright 2004). How researchers involve in commercialization activities and collaborate with the VC/firms as a new stakeholder is an unexplored research problem which is worth investigation. The research commercialization must explore the levels of technology transfer and commercialization activity at university incubators and further identify barriers and factors that contribute to the generation of opportunities and associated supportive business systems and processes (Ab Aziz et al. 2011; Wright et al. 2004). Subsequently the business processes explain the academics involvement in relation to the commercialization of HE's invention (Ratinho et al. 2020).

Issues of spin-offs are surrounded by questions on how the investors at the university should engage in the commercialization of their inventions. Bulsara, Gandhi, and Porey (2010) classify two major kinds of scientist in this regard, namely those scientists (inventor) with entrepreneurial characteristics and enterprising traits and those without entrepreneurial characteristics. Bulsara et al. (2010) suggest two options, firstly for technology entrepreneurs to commercialize their patented technology innovations engage actively in the techno-entrepreneurship. However, the scientist inventors who does not possess enterprising traits should opt for technology transfer (licensing) as a second option (Bulsara et al. 2010). This option is important to compensate their inability to seek opportunities derived from their inventions and discoveries. The second option is in accordance with the notion of lack of ambidexterity capabilities suggested by (Ambos 2008). The second option for the non-ambidextrous scientist gives opportunity for CV/firms to exploit the innovations (inventions) without the scientist interference (Ratinho et al. 2020).

Entrepreneurship characteristics contribute as major criteria to propel and succeed in a new venture firms as it could be more important determinant factor than advancement of the research itself. There are possibilities for good research that is not commercialized due to the inabilities of the researcher to sell-off the inventions. Ajagbe et al. (2015) explains further that the main characteristics that would be expected of a technology entrepreneur to be successful such achievement, autonomy and independence, creative tendency, moderate and calculated risk taking, drive and

determination (Ajabge et al. 2015). As a comparison, the above notions are somehow consistent with cases described at University Technology of Malaysia (UTM) in terms of whether or not the scientist or university investors were involved actively in the new venture. The previous study from UTM which classified the spin-offs mode into 4 categories (Major UTM - Minor Inventor/Investor, Minor UTM – Major Inventor/Investor, Major Company – Minor UTM and UTM 50% - Inventor 50%), Wright et al. (2004) only classifies the university spin-offs/spin-outs into two main categories which are University Spin-out (USO) and Joint-Venture Spin-out (JVSO) (Wright et al. 2004).

USO is a new company founded by university entrepreneurs around a core technological innovation which had initially been mainly developed using the university resources. The creation of a USO is dependent on the transfer of IP from the university to the new venture, which is established to exploit and commercialize the IP. On the other hand, JVSO is another alternative in which external firms or entities are formed to work with the university entrepreneurs and inventors to exploit the IP (Ab Aziz et al. 2011). Based on the author's comparison between the two types of formation, Wright, Vohora & Lockett (2004) recommend JVSO formation since it has greater potential as a rich source of surrogate entrepreneurs, with greater managerial and marketing capabilities and supply. Wright, Vohora & Lockett (2004) prevail that based on 5 UK universities the research discoveries are disruptive innovations. As appose to sustaining innovations, the disruptive innovations are highly potential to dominate new market. Disruptive innovations have a greater competitive advantage against their rivals. As the owners of Intellectual Properties (IPs) of a new disruptive technology the USOs do not need to compete in a conventional way to capture a new market. However, the false impression of academic scientist of the commercial value of their discoveries was a result of having insufficient prior market knowledge. Market knowledge is crucial and the inability of USOs on how to serve the market caused the USOs short lived. The business incapability and lack of current market awareness to pin-point unmet customer needs Wright, Vohora & Lockett (2004) highly suggest JVSOs model. JSOs model is a better option for non-ambidextrous to avoid the false market impression. In addition, HEs research commercialization framework seek possibility to incorporate the incubation program to avoid the unmet market needs.

As recommended by (Maine and Garnsey 2006) the comprehensive framework enables the agreement between technological challenges (university) and market challenge (industry) must be met. Hence, the commercialization of IPs is necessary to frame the entire components of commercialization program to enable a streamline work processes and resources.

## 2.1 Research Questions

Applying the Institutional Theory in research commercialization in HE has its limitation as the success of commercialization are contributed by individual factor of the entrepreneurial qualities of the inventor, academic scientist (Wu et al. 2015; D'Este and Perkmann 2011) rather than the institution (institutional factor). For example, Wu et al. (2015) who made a generalization based on 675 patents awarded in different universities in US concluded that the commercialization success of is contributed by individual factor and collaboration with industry (Wu et al. 2015; D'Este and Perkmann 2011). Based on this literature, the research commercialization must be concentrated into investigating academia as individual entrepreneurs, scientist and technology entrepreneurs who do not only possess the knowledge and expertise but the dynamic capabilities to play their roles to sell-off the product and services (Fini et al. 2019; Eisenhardt and Martin 2000).

From resource-based perspective (theory) the availability of these resources both tangibly and intangibly are intertwined with academic entrepreneurs' dynamic capabilities and have relative impact on firm's success (Eisenhardt and Martin 2000; Jeremy 2005). From the capability's perspective, the availability of those resources only significantly contributed to commercialization success if those resources are exploited with the right process, functions and roles played to meet the commercialization objectives.

Mowery and Shane (2002) argue that the best solution for university technology commercialization requires that economic actors (VC/firms) and incubation program in this case) who have a comparative advantage in the commercialization (Markman et al. 2005). The commercialization involves a tacit set of skills including identifying customer needs, developing product concepts, designing products and processes and manufacturing that university inventors rarely possess (Mowery and Shane 2002). Therefore, this research investigates the component of a commercialization program to compensate the academic scientist lack of competence to undertake commercial initiatives as they require different skills and abilities than purely academic ones (Ratinho et al. 2020; Ambos 2008).

Without disregarding institutional factors, Cunningham, Lehman, Menter and Seitz (2019) and Wu et al. (2015) claim that the likelihood of successful commercialization and licensing is more significant for those individual entrepreneurs' contributions than the institutional factors' contribution. There is limited evidence of institutional factors contributions such as, university and technology transfer office however is quite surprising that Ambos et al. (2008) find that the experience and breadth of support of the transfer office is not significant predictors of commercial success. The role of transfer office is only important in the later stages of commercialization process Ambos et al. (2008). The initial decision to commercialize is dependent on the academic entrepreneurs' motivation. If Ambos et al. (2008) findings are generalized into this research context it is worthwhile to investigate the effective roles of commercialization programs and the participation level of the VC/firms and academics entrepreneurship factor.

1. What are the characteristics of roles and functions of commercialization programs with regards to successful commercialization of IT products? - #R1

**Proposition 1 (P1)**

The incubator which has a high level of technology (products) is more successful in research commercialization.

**Proposition 2 (P2)**

The incubator which has high marketing capabilities is more successful in research commercialization.

2. How do Venture capitalist/firms engage with the Higher Education (HE) inventions and innovations developed in commercialization programs? - #R2

**Proposition 3 (P3)**

The VC capitalist/firm which has high level of technology expertise is more successful in research commercialization.

**Proposition 4 (P4)**

The VC capitalist/firm which has high marketing capabilities is more successful in research commercialization.

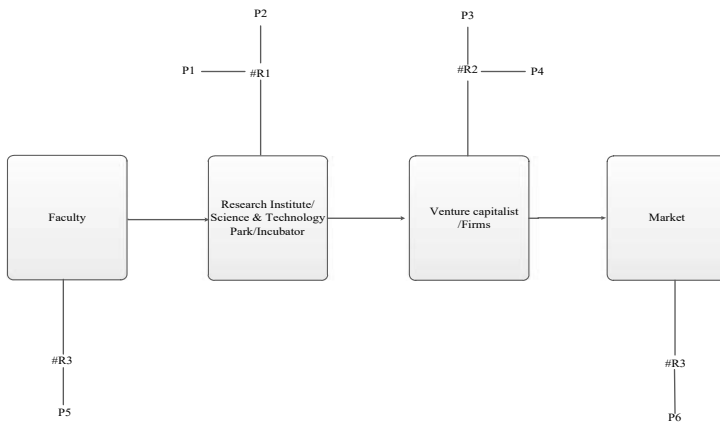
3. What are the capabilities that catalyze the commercialization of HE inventions and innovations? - #R3

**Propositions 5 (P5)**

The academic who catalyzes research commercialization has high entrepreneurs characteristics.

**Proposition 6 (P6)**

The VC capitalist/firm which has high marketing capabilities is more succeed in research commercialization.



**Fig. 1** Conceptual framework of commercialization process flow

The Fig. 1 below provides a very high-level description of data generation and knowledge integration processes as adapted from the knowledge integration process. This research applies and investigates the relevant approach to technology commercialization by incorporating qualitative method such as description of agile development approach with the quantitative method. The research context offers explanation of this methodology's relevance in HE commercialization context. Hence, the research outcomes will contribute towards creations of a theoretical and practical framework in the field of university technology entrepreneurs. The final product of case studies provides a conceptual framework in research commercialization (Albert and Gaynor 2006; Wang, Soetanto, Cai and Munir 2021).

### 3 Research Design

This research design is meant for eliciting the research objectives of the development of commercialization for technology products and innovations (inventions). The case study approach is chosen due to the nature of the context-specific purpose (Yin 2013). The contexts where data for prototyping and product development take place are in the HE commercialization program. This research incorporates positivist and interpretive paradigm into the research cases. The case study is important to assess the validity of the research questions whilst offer better participant enrichment and giving more accurate assessment in the surrounding issues of technology commercialization cases in HE (Teddle and Tashakkori 2009). This emphasis the needs to explore the relationships among the stakeholders whose include the technology entrepreneurs, VC/firms, the university-industry commercialization programs in regards with the commercialization initiatives. The combinations of qualitative-quantitative approaches are also supported by Basias and Pollalis (2018) in the importance of process measures when evaluating information systems and the need to explore the necessary relationships between a computer system and the perceptions of its users (Basias and Pollalis 2018).

The successes of commercialization programs are very much dependent on the availability of resources and how those resources are utilized to manifest the commercialization. There is a widely renewed interest displayed in the role of resource-based capabilities as a means of creating competitive advantage. It is important to differentiate between the ordinary resources and capabilities (Grant 1991) as it determines the ability of individuals as a main source of competitive advantage of products and services. Wu, Welch and Huang (2015) categories these resource as factors both scientist and academia as: 1) individuals; and the 2) universities as institutions (Wu et al. 2015). Based on national survey commercialization 2010 of academic scientists in the United States, Wu et al. (2015) advocate that the influence of individual factors is more dominant to determine the Intellectual Property licensing than the institutional factors. These individuals are academia entrepreneurs, scientist and technology entrepreneurs who do not only possess the knowledge and expertise but the dynamic

capabilities (Eisenhardt and Martin 2000) to play their roles to sell-off the product and services.

From resource-based perspective (theory) the availability of these resources both tangibly and intangibly are intertwined dynamic capabilities (Eisenhardt and Martin 2000) and have relative impact on firm's success (Jeremy 2005). Jeremy (2005) further categories the tangible-intangible resources as follows:

- 1) Tangible resources which include
  - (a) Financial assets
  - (b) Physical assets
- 2) Intangible resources that are assets which include
  - (a) Intellectual property assets
  - (b) Organizational assets
  - (c) Reputational assets
- 3) Intangible resources that are skills and dynamic capabilities (expertise, knowledge, technology)

Tangible financial assets are financial capital, cash on hand, investments measured by the firm's balance sheet. Tangible resources include those factors containing financial or physical value as argue that there is generally no disagreement over what encompasses tangible resource (Jeremy 2005). In the commercialization context, the financial tangible assets include funding, investments and grant received to carry out research and commercialization activities. Whilst, the tangible physical includes buildings for incubator as well as all necessary infrastructure such as labs, meeting rooms and all necessary facilities that can be evaluated in the balance sheet. Reputation is a valuable asset as it signals external entities about the trustworthiness and credibility and developed and gained over time through the organizations' success (Dowling 2006; Munari and Toschi 2021).

Thorburn (2007) explain the capabilities of tacit knowledge which is described as a complexity, its continual evolution, and its embodiment in personal skills, which vary from person to person. Tacit knowledge exchange and flows has a central role in organizational learning. The success of formal technology licensing can be increased when tacit knowledge is also transferred in the commercialization programs.

However, according to Jeremy (2005) capabilities are argued to be the utmost sources of firm success. As intangible resource capabilities contribute more significantly to firm success than either tangible assets or other intangible assets (reputations, organizational and etc.). Capabilities in terms of skills, expertise and know-how are tacit and not easily copied by competitors. Grant (1996), for example, argues that the success of any firm is dependent upon the knowledge (know-how) of its employees which is largely complex, specialized and most difficult resources to duplicate (Munari and Toschi 2021).

## 4 Methodology

As suggested by Yin (2013) there are namely three types of case studies namely exploratory, descriptive and explanatory case studies (Yin 2013). With regards to commercialization of universities' product and technology the explanatory is used to explain research commercialization context in order to relate multiple and inter-linked factors and elements that had an effect in order to get an insight whether a particular theory match the case. The outcome will provide an explanation of the case being studied in relation to theories from the literature (Oates 2005).

A similar program held at Singapore Management University's Institute of Innovation and Entrepreneurship that helps students and faculty to grow their own businesses through a variety of competitions and programs. The programs have raised \$3.7 million in grant funding and \$9.4 million more in follow-up funding to further invest in the 110 companies they have helped generate (Mitchell and Watstein 2015).

### 4.1 Data Collection Methods

Wang, Qiu, Sangaiah, Liu, Bhuiyan & Ma (2020) and Yin (2013) identifies several sources of evidence that work well in case studies namely from observation to documents analysis. This research proposes a combination of the followings;

1. Interviews (structured, semi structured and open ended),
2. Observations
3. Examining the artifacts and products.

This combination is particularly useful to examine the outcome of the HE researches commercialization activities. The entire business processes are studied to comprehend the entire work flow until the development of the artefacts. This involves a thorough examination expands from proof of concepts phase, prototypes to the end users. The goal of this data collections method is to obtain rich set of data surrounding the specific research problems as well as capturing the contextual complexity. In the HEs commercialization context, the methodology will assist the researcher by providing evidence and explanations with regards to the commercialization of products and artefacts in the commercialization program (Gable 2020).

In this research, the third method (examining the artifacts and products) is expected to be more challenging yet interesting as the process involves the technical process of the product development. The process comprises of, product design and development, prototyping, proof of concept and pilot testing, IP creation until the technology is push to the market.

As depicted from the figure below the data collection method illustrates how the data generation are carried out based on qualitative method that incorporated in the selected case studies in universities commercialization program. The inferences resulted from these cases are detextualized to form the research commercialization



research questions as suggested by the literatures (Gable 2020; Yin 2013). Farquhar, Michels & Robson (2020) for example, complement quantitative data from questionnaires with qualitative evidence from observations and interviews (Farquhar et al. 2020). This case studies approach is performed to assess the objectives of the research. The feedback from qualitative perspective is gathered and analysed to conceptualize the HEs commercialization.

All elements of the qualitative data source are assessed and evaluated to build up and refine the conceptualization of the HE commercialization model. Qualitative data are useful for understanding the rationale or the underlying theory. Future research is required to reveal relationships in the qualitative data or directly suggest which theory can then be strengthened by quantitative data source (Farquhar et al. 2020).

## 4.2 Data Analysis Techniques

With regards to commercialization of HEs' artefacts and products dynamic capabilities (tacit knowledge, skills and expertise) are resided at commercialization programs and among the academic members (Wang et al. 2021). These capabilities are unique as the ability of these capabilities to generate value and benefits for commercialization is relatively dependent on the knowledge sharing process across the proposed model embodiment. The commercialization program will serve as platform for the knowledge sharing and a forefront entity to penetrate the market.

The data will be gathered on selected cases of universities' innovation and commercialization (incubation) programs. The data will be generated from:

1. Participants –there are two types of academics/scientists
  - i. An ordinary academics who are only engage in teaching and research
  - ii. Entrepreneurial academics who are actively engaged in commercialization a part from teaching and research
  - iii.. Entrepreneurs from VC/firms and industry.
2. Interviews – semi structured interviews among academic scientist entrepreneurs and managers from VC/firms in HE.
3. Observations – the researcher observed activities in the in the selected universities incubator such as science and technology park.
4. Thematic analysis – The data collected from interviews and observations are analyzed using thematic analysis to answer the research questions. The data are compared and contrast with the existing literature to prove the consistency (inconsistency).

All inputs (data) from the cases in the HE commercialization programs are continually iterated till saturation is reached. Theoretical saturation is a point at which incremental learning and improvement are minimal because the researchers are observing

phenomena seen before (Farquhar et al. 2020). In the context of Higher Education (HE) commercialization, saturation is achieved when the incremental provide minimum or no improvements to the proposed model.

Technology entrepreneurs pose a great challenge for matching technological capabilities to market needs. The matching process involves triangulating activities both technical challenge and market challenge (Maine and Garnsey 2006). Technical challenge requires technical knowledge that is definitely available within the HE as a result of discoveries and research activities. However, the market is no less challenging as this challenge requires the entrepreneur to push the technology within diverse regulations and defensive response as a result of an organizations resistance. From the entrepreneurs' perspective identifying potential market is coupled with experimental development, design and prototyping, trial production and which involve a lengthy business process. Matching both technical possibilities and the market needs are practically very iterative process. On the other hand, from the end-users' perspective adapting (or adopting) new technology involves the recognition of needs (Woltjer, Van Galen and Logatcheva 2021).

## 5 Research Aims

This research aims to develop the research commercialization model based on the capabilities (Cunningham et al. 2019; Eisenhardt and Martin 2000) of tangible-intangible resources derived from resource-based theory (Battaglia et al. 2021; Wright et al. 2004; Jeremy 2005). The resource-based theory in which Jeremy (2005) applies is concentrated on identifying the firm's success. The results might differ as the orientation of success in the firms where the theory applies determines the survival in the competing industry. On the other hand, commercialization success is rather driven by academic research orientation.

Resource-Based Theory (RBT) advocated by Jeremy (2005) is hypothesized and tested among manufacturing and services firms operating in Australia (Jeremy 2005). Adapting RBT in HEs research commercialization will offer new insight as the HEs are better off in accessing the technology compared to ordinary firms in the industry although their market capabilities comparatively might be low. However, market knowledge and capabilities of ordinary firms is better (medium to high) than the HE ventures capitalist/firms (low to medium). RBT is suggested due to the practicality in theorizing the application as tangible-intangible Resource Base Theory and dynamic (Eisenhardt and Martin 2000) capabilities (Eisenhardt and Martin 2000) can be replicated for HE commercialization initiative (Fini et al. 2019; Wright et al. 2004). These resources and assets are mapped in HE commercialization model as attributes in Table 1.

In the table above, both intangible assets (resources) and intangible assets are divided in different rows. Jeremy RBT intangible resources are listed down and mapped with the proposed model as follows:

**Table 1** Mapping the Jeremy resource-based theory with HE resource-based view

|  | Jeremy Firms RBT  | Adapted RBT on HE  |
|--|---|--|
| Intangible Resources/Intangible Assets | <ul style="list-style-type: none"> <li>• Capabilities</li> <li>• Organization</li> <li>• Reputation</li> <li>• Intellectual Property</li> </ul> | <ul style="list-style-type: none"> <li>• Faculty/Research Programs</li> <li>• Commercialization Programs</li> <li>• VC/Firms collaboration &amp; capabilities</li> </ul> |
| Tangible Assets                        | <ul style="list-style-type: none"> <li>• Infrastructure/Building</li> <li>• Financial Capital</li> <li>• Financial Investment</li> </ul>        | <ul style="list-style-type: none"> <li>• Incubator Infrastructure</li> <li>• Funding/Grants/Investment (for commercialization)</li> </ul>                                |

- Research institute/Science and Technology Park
- Venture Capitalist/Firms collaborations

Faculty and commercialization programs are categorized as intangible assets based on the tacit nature of these assets. On the other hand, venture capitalist/firms will be measure based on their commercialization collaboration in the commercialization program within the same category (intangible) (Fini et al. 2019).

The tangible resources which consist of physical assets and financial resources will be mapped in the same way as below:

- Incubator Infrastructure (building, facilities and etc.)
- Funding/Grants/Investment (for commercialization)
- Human Resource (HR) staff involved in the technology transfer office

In addition, the result of this research will provide a confirmation based on the notion that the firms’ dynamic capabilities (Eisenhardt and Martin 2000; Munari and Toschi 2021) (know-how, skills and expertise) are the most prominent factor in determining the firms’ success based in the HE case context (Battaglia et al. 2021). The research questions can be explained from the diagram below.

### 5.1 Research Objectives

This article seeks insights to the following objectives:

1. To understand the characteristics of roles and functions of commercialization programs with regards to successful commercialization of IT products.

This article seeks understanding the unique roles of academic both as researchers as well as entrepreneurs that push their innovations to the market. As these roles are unique it distinguishes them from the rest of their colleagues. Their roles are worth investigated because the nature of the academic world where the facts are discovered, new paradigms are envisaged, and new inventions are developed into future business solutions.

2. To explain the roles of Venture capitalist/firms engage with the Higher Education (HE) inventions and innovations developed in commercialization programs.

As many universities around the globe have shifted their paradigm to be more open, new players are invited to share their capabilities to engage in research commercialisation. As a result, this phenomenon brings new insight since this engagement has opened dialogue and sharing opportunities for the academic innovations pulled (pushed) to the market. This objective seeks the explanation and definition of the engagement with the HE. Their engagement shed light the VC/firms significant new roles towards the commercialisation success.

3. To highlight the capabilities that catalyze the commercialization of HE inventions and innovations.

Finally, the general capabilities that spear up the commercialisation success must be understood. HE as an organisation provide a conducive (inconducive) environment towards the commercialisation success. For examples, as mentioned in the literature, resources both tangible and intangible are crucial. Allocating resources require top down approach and decision. Since resources are scarce, HE may in a difficult situation to prioritise between resources for research and resources for commercialisation purpose.

## 6 Conclusion and Implications

This research contributes a theoretical model for successful commercialization and commercialization programs and describe the complex relationship between resources (finance, funding, and investment) and knowledge both tangible and intangible capabilities (Olanrewaju et al. 2020; Jeremy 2005). The first research question regarding the characteristic of roles of commercialisation program, it is obvious that research products which are more market oriented are more successful than the technology-oriented ones. Although the incubator that offers the high level of technology is important, the failure to align them to the market requirements is just perceived immature or merely a product of academic exercise.

The above objectives lead to the next objectives in which defines the roles of the external firms and venture capitalist's involvement. This firms bridge the inventions and innovations with the market. The new HE inventions and innovations are facing a vas and huge dead valley before reaching the market.

Since it is obvious that the business entities are more well verse with the market and closer to their customers than the HE. Synergising the HE technology and the VC/firms manage to shape the new technology to be more market oriented hence more successful to penetrate the targeted customers' market. As a result, the VC/firms engagement is remarkably important to close the dead valley gap between academic research with industry applications.

These business entities survive based on their customers' product. Technology advancement though is important, this firms need to tie up their innovation and technology solutions towards the market. Thus, market potential is more appetising for this business entities that the technological advancement.

The third objective pertaining the capabilities of HE commercialisation prove the academic entrepreneurship in their commercialisation success. However, only a handful of the respondents shows a genuine entrepreneurial capability. These entrepreneurial academic researchers play ambidexterity capabilities suggested by Ambos (Ambos 2008) that have talents and capabilities both in academic research and commercialisation venture. They not only excel in developing their research product into customers' end product but also have their talent pitching their innovation before the VC/firms and customers.

Pushing the technology against various regulation are tedious tasks. Hence the process is much more leveraged provided that this entrepreneurial academic able to share this responsibility with the VC/firms. As stated in the previous objectives, their involvement defines a new relationship with the academics and the HE.

Hence, it provides a new insight that enhance our understanding of the relationships between university and firms in the industry in terms of research commercialization (Minguillo and Thelwall 2015; Woltjer et al. 2021). Understanding the characteristics, roles and functions that comprises in the technology research commercialization and those resources involved are deemed necessary. The outcomes provide a model on how to channel the universities' inventions (innovations) to the industry effectively (Siegel et al. 2004; Wang et al. 2021; Wright et al. 2004; Yusof et al. 2009). Thus, the model offers best practice and guidelines for academic research commercialization (Ratinho et al. 2020; Siegel et al. 2004).

The outcomes produce practical implications and serves as guidelines and best practices for university and research-based innovations developed in research centers or incubators (Berger et al. 2021; Wu et al. 2015). The university-industry commercialization framework (Ambos 2008; Berglund et al. 2020) provides a valuable insight for academia technology entrepreneurship. There are many lessons learnt from the research commercialization program such as:

- Sophisticated university programs and selection criteria, such as pitches to a funding plenary, business plan competitions as well as an improved interaction through a structured process, increases the quality of supported ventures (Borg 2001; Minguillo and Thelwall 2015; Musibau and Kamariah 2013; Woltjer et al. 2021). The University incubators can overcome 'failures' in the technology market and reduce transaction problems, such as adverse selection, moral and financial supports.
- Higher commercialization rate of Intellectual Properties leads to high economic returns through licensing agreements (D'Este and Perkmann 2011; Markman et al. 2005; Ratinho et al. 2020). This quest for benefits for both academia entrepreneurs and the venture capitalist/firms.
- University incubation programs increase the quantity as well as quality of entrepreneurial activities at universities (Becker and Gassmann 2006). Potential IPs often fail to penetrate the market as academics are not well versed to venture the invention (innovations) (Borg 2001; Cunningham et al. 2019; Rubin et al. 2015) and access to potential funding and due to absence of VC/firms partnerships.





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# The Role of Information Technologies in Access to Rural Tourism Education



Tetyana Kalna-Dubinyuk , Anna Zbarska , Viktoriia Ovadenko ,  
Olena Barylovych , Violeta Heraimovych , and Nadiia Reznik 

**Abstract** Today's societal challenges, the pandemic, require new approaches to the organization of modern education, which is becoming increasingly digital and based on blended and distance learning with the introduction of modern information and communication technologies. The use of interactive distance learning methods, which are based on purposeful and controlled intensive independent work of a student who can study in a convenient place, according to the chosen schedule, is relevant and needs to be disseminated. The purpose of the work was to develop a consulting system for interactive provision of knowledge and scientifically sound answers to the client in rural tourism. The research is carried out on the basis of methods of system analysis, SWOT-analysis, monographic method, as well as statistical and sociological research, economic and mathematical modeling. The scientific novelty of the work is the deepening of organizational and consulting proposals for the provision of interactive educational and informational support in rural tourism. As a result, created an interactive educational and information support system based on the optimal combination of computer hardware, computer networks, software, operating systems and databases, which are aimed at the accumulation, storage and transmission of large amounts of information for processing and use. The importance of creating educational and information systems in rural tourism with the use of interactive consultations with the necessary recommendations to quickly meet customer needs is emphasized. The variety of types of rural tourism and forms of accommodation

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T. Kalna-Dubinyuk · A. Zbarska · V. Ovadenko · O. Barylovych · V. Heraimovych · N. Reznik (✉)  
National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine  
e-mail: [nadya-reznik@ukr.net](mailto:nadya-reznik@ukr.net)

A. Zbarska  
e-mail: [zbarska@nubip.edu.ua](mailto:zbarska@nubip.edu.ua)

V. Ovadenko  
e-mail: [v.ovadenko@ukr.net](mailto:v.ovadenko@ukr.net)

O. Barylovych  
e-mail: [obarylovych@nubip.edu.ua](mailto:obarylovych@nubip.edu.ua)

V. Heraimovych  
e-mail: [vita\\_violeta@ukr.net](mailto:vita_violeta@ukr.net)



complicates the search for a place to rest, which indicates the need to improve methods of information support in this area. The prospect of using an interactive consulting system of educational and information support for the development of rural tourism indicates the need for computerization of rural areas.

**Keywords** Educational system · Interactive consulting · Information technologies · Rural tourism · Consulting system · Component of tourism product · Territory of priority development · Economic development · Environmental situation · Agro-consulting services

## 1 Introduction

Rural tourism is considered in Ukraine, as in most countries of the world, as an integral part of integrated socio-economic development of the village and as one of the means of solving many rural problems. It expands the sphere of employment of the rural population, especially women, and gives the peasants additional income, increases the employment opportunities of the farmer not only in the production sphere but also in the service sphere.

The development of rural tourism provides benefits not only for the economy, environmental protection, improving the environmental situation, it is also important for the united territorial communities, stimulates the development of territories, creating new jobs, leading to an influx of young professionals to rural areas.

A number of scientific studies of various aspects of rural tourism development indicate the need to use modern educational and information technologies and consulting systems for the rapid formation of the necessary recommendations to clients. The modern concept of consulting systems and technologies is based on the optimal combination of computer hardware, computer networks, software, operating systems and databases, which aim to accumulate, store and transmit large amounts of data electronically. In Ukraine today there are a large number of tourist information centers where information on tourist and recreational opportunities, including places, resources, chosen by tourists in the region.

At the same time, the successful development of the tourism business in Ukraine is hampered by the imperfection of the process of providing information and consulting services, including educational services in rural areas, which indicates the relevance of the study. The creation of educational and information consulting systems using an interactive approach is considered.

Such systems include the provision of various tourist information (from advertising to routes and accommodation), consultations (from the selection of recreation, the creation of farmsteads, categorization to the use of alternative energy sources, etc.) using interactive consulting systems, training on active tourism and tourist support, etc.

## 2 Literature Review

Significant contribution to the formation and development of information and consulting technologies has been made by foreign and domestic scientists, including S. Johnson, McHam, V.Koshelev, V. Riviera and others (Johnson and Kalna-Dubinyuk 2018; Mc 1999; Koshelev 2011; Ulyanchenko 2010; Rivera and Zijp 2002; Espolov et al. 2012).

Foreign research by S. Johnson is devoted to the formation of the theory of agricultural consulting of its communications, V. Koshelev – to the study of consulting as a process of information and consulting support, K. McHam is devoted to disclosing the application of consulting in management, and V. Riviera – related to disclosure of various issues of development and functioning of the market of agro-consulting services. Ukrainian scientists developed the theory of agricultural consulting, stressed the need to use information technology in consulting decisions.

Further developments concerning modern conditions of counseling were investigated in the works of I. Kudinova, V. Samsonova and others (Zaburanna 2011; Hall 2000; Teston et al. 2020; Ichenko et al. 2021; Chornous et al. 2020) where the emphasis is on the effectiveness of consulting services work, interactive consulting systems in rural tourism—T. Kalna-Dubinyuk, K. Rogoza and others (Rogoza 2019; Kalna-Dubinyuk et al. 2018) are devoted to the problems and peculiarities of application of information and consulting technologies in agricultural enterprises.

Despite the increased attention of scientists to the development of rural tourism, the role, place and main components of interactive educational information and consulting systems for interactive knowledge and scientifically sound recommendations of the client in rural tourism are insufficiently studied, which indicates the relevance of the selected study.

The purpose of the work is to develop a consulting system for interactive provision of knowledge and scientifically sound answers of the client in rural tourism.

Main tasks:

- construction of an interactive consulting algorithm that will provide a step-by-step mode of dialogue between the consultant and the user;
- development of the structure of the database and knowledge base for rural tourism and their software;
- development of mathematical support for finding scientifically sound solutions to customer requests. Filling databases and knowledge bases with relevant information;
- construction of different modes of operation of an interactive consulting system for rural tourism.

In a market economy, it is necessary not only to have knowledge, but also to constantly replenish it. The developed interactive consulting system will help to achieve success in business, provide knowledge and help to receive the user's questions interactively. The principles of building the system, its hardware and software

based on web technologies, tools of technical documentation for the development of recommendations are presented. The developed program for the implementation of an interactive consulting system is designed for consulting companies and consultants, as well as for a wide range of users who develop their business in terms of world standards and certification.

### **3 Purpose of the Study**

The purpose of the work is to develop a consulting system for interactive provision of knowledge and scientifically sound answers to the client in rural tourism.

### **4 Methodology**

To create an interactive counseling system in rural tourism, modern Internet technologies are used, which will use the created databases and knowledge bases, providing users with the necessary information from all over the country and abroad on the effective selection of recreation in rural areas. In addition, users will be able to get convenient, efficient, useful, reliable and effective access in the «question–answer» mode with elements of training and tips using to form the optimal recommendation of the appropriate arsenal of computational quantitative and qualitative methods.

Legislative and normative, reporting materials, databases and knowledge bases of MAPU, NAAS of Ukraine, the Union for the Promotion of Rural Green Tourism, international technical assistance projects, etc. were used for scientific research.

Research will be carried out on the basis of methods of system analysis, SWOT—analysis, monographic method, as well as statistical and sociological research, economic and mathematical modeling.

### **5 Findings and Discussion**

The creation of a tourist interactive educational and information consulting system is considered. An interactive consulting system for rural tourism is based on web technologies. The web application is a client- server application in which the client is a browser and the server is web server. The client part of the web application is a graphical user interface that is displayed in the browser and allows the user to interact with the server part of the web application. The server part of a web application is a program on a server that is responsible for processing requests from users' browsers and working with database.

The operation of the system is provided by a database and knowledge base in the relevant field, which are constantly updated. The algorithm for finding a solution

is implemented using statistical, economic-mathematical (optimization), expert and other methods. The system starts with what is configured for a particular user (his industry and type of activity) and his needs.

Then in the interactive mode there is a decision formation. The user is offered questions on the screen, possible answers to them, or fields for entering the necessary information. The user selects the answer that matches his query. The system moves on to the next question and the client chooses the answer again. This continues until the system asks all the necessary questions in order to form the necessary solution for the user. The user receives an answer to his question on the screen of the device, with the ability to save information in a convenient format.

An integral and perhaps the most important component of an interactive counseling system is specialized software. In addition to performing the classic functions required to ensure the coordinated operation of all components, specialized software must form a specific interface, which will create an interactive user interaction with the system. An interactive consulting system for rural tourism is built on the basis of web technologies—web applications.

Creating web applications is becoming more popular every year, because it aims to facilitate the work of the user and provide constant access to the necessary data. A web application is a client—server application in which the client is a browser and the server is a web server. The operation of the web application is distributed between the server and the client, the data is stored mainly on the server, and the exchange of information between the client and the server takes place over the network. The web application consists of three main components: the client and server parts and the database. The client part of the web application is a graphical user interface that is displayed in the browser and allows the user to interact with the server part of the web application. The server part of a web application is a program on the server that is responsible for processing requests from users' browsers.

The server processes the relevant requests, calling the scripts responsible for creating the web page, and sends the results to clients over the network. The database is used to store data. The browser sends HTTP requests to the web server via the Internet. The web server, in turn, invokes scripts that, if necessary, access the database and return the relevant updated web pages to clients.

Designing a Web application involves the use of a «thin client». That is, specialized software cannot be used on the user's side. Interaction with the user at the physical level can only take place using the common HTTP protocol. Thus, the level of presentation is primarily responsible for the organization of interaction with the «thin client» (i.e. browser). The following tools were used to develop an interactive consulting system based on a web application for the organization of rural tourism in Ukraine:

1. HTML 5;
2. CSS3 (SCSS);
3. JS (jQuery);
4. PHP.

HTML is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of core technologies for the World Wide Web. Using HTML, the markup of the visible part of the interface for the application was created: blocks, buttons, links, etc.

CSS is a special language used to describe the appearance of pages written in markup languages. With CSS, rules were set for visual data. Colors, background screensavers, pictures, font and its size, visibility of blocks, etc.

JS is a dynamic, object-oriented prototype programming language. Implementation of the ECMAScript standard. It is most often used to create web page scripts, which allow the client-side (end-user devices) to interact with the user, control the browser, asynchronously communicate with the server and change the structure and appearance of the web page.

Using JS, the rules for switching application blocks were set (buttons: «next» and «return»). Each page has its own identification number, by interacting with the interface, namely pressing the button executes the JS script which checks whether the buttons have a block identification number and if the number is presents changes the CSS style for the specified block making it visible and hiding all other blocks.

For the block «SELECT REGION» using JS set the following scenario: when you hover the cursor over the region, check the attributes of the element (in the attribute of the element specified locality) and select the specified areas on the map. The map is given by a picture. Selected areas are pictures that are hidden by default. Using the JS script, we make the corresponding invisible areas visible and vice versa when the cursor is removed from the hotspot.

The following scenarios were implemented for the «SELECT OBJECT TYPE» block:

The markup created four active areas with attributes. When hovering over an area, a JS script is executed that takes the value of the attribute (the image name is specified in the attribute) and replaces the CSS of this block by substituting the image from the attribute in the background.

«DEFINITION OF AVAILABLE RESOURCES AND SERVICES»—in this block the user can mark the appropriate parameters at will. Each of the parameters has its own attributes that are responsible for the target groups and the cost of the service. After clicking the «Next» button in this block, a special script is executed. Arrays of data for services of various cost estimations are created; also an array for target groups is created. Then the data sets are used for output in other blocks and sending information to the e-mail address.

Block «VALUATION OF SELECTED SERVICES»—data sets that we received earlier are displayed in the block on the left according to their assessment. Overall rating of all services – is displayed on the right and is the maximum score when activating all services. And the sum of all selected services is displayed above the thresholds.

In the block «FORMATION OF FINAL RECOMMENDATIONS»—all the information selected by the user is grouped and displayed. References to the necessary documents, etc. are also provided. At the bottom there is a form after which all the information and documents are sent to the e-mail address of the user and manager (no need to enter, specified in advance). Information is processed using the JS language and the ajax tool. All collected information is passed to the processor.

The handler is written using PHP—a scripting programming language, was created to generate HTML pages on the side of the web server. PHP is one of the most

common languages used in web development (along with Java, .NET, Perl, Python, Ruby). PHP is supported by the vast majority of hosting providers.

The handler receives the data and generates an HTML message that will be sent to the specified address. This process takes place on the server side so the user does not see any changes in the page, and the letter is sent in the background.

The program has a hierarchical form: images, CSS, HTML, JS code files are in various relevant directories. This is done for ease of use of a file and makes it easier to work with data.

## 6 Conclusion

Having studied the existing scientific basis for the organization of consulting activities and methodological approaches to building interactive consulting systems, developed the basic positions and scientific and methodological principles of building such systems for rural tourism, taking into account the industry and trends in information technology.

The modern approach to the development of interactive consulting systems and technologies is based on the optimal combination of computer equipment, computer networks, software, operating systems and databases, which aim to accumulate, store and transmit large amounts of data for them electronically.

Based on the study of available technologies and basic positions that characterize the process of organizing rural tourism, the concept of forming an interactive system of consultations has been developed, which includes the following main components: a person with his needs, interests, opportunities; information support of databases and knowledge bases; technical support with modern computer equipment and the Internet; mathematical software with its methods and models and software.

After researching the basic principles and requirements for building an effective database, an appropriate data structure was developed for the operation of an interactive consultation system. The main categories and concepts inherent in the field of rural tourism are defined, and accordingly the structure of the database and knowledge base is developed, which will ensure optimal system operation, compatibility with modern software and hardware and user interaction with it.

As a result of the creation of an interactive educational-information-consulting system, consumers of tourist services are provided with prompt finding of scientifically substantiated recommendations in the conditions of fierce market competition.

The interactive consultation system is a convenient tool in the hands of a consultant. This allows forming recommendations on a scientific basis, using the full scientific and technical potential of the agro-industrial complex and giving answers ten times faster than the capabilities of a consultant who is not armed with such a system. Solutions are formed in fractions of minutes or minutes, depending on the task, while the quality of services is significantly improved.

The use of an interactive consultation system in rural tourism is relevant. Today, the population of Ukraine and abroad is increasingly interested in outdoor recreation,

where you can be alone from the noise of the city and the hustle and bustle, where clean air and healthy food.

Therefore, a convenient system for finding the necessary information for consumers is in great demand among the population. Thus, within such a system it is possible to move from simple information to providing quality services to users, based on interactive technologies that can be implemented both in direct contact «client-consultant» and in the form of web services and mobile access to information resources «consultation—recommendation—decision making—training».

The prospect of using an interactive consulting system of educational and information support for the development of rural tourism indicates the need for computerization of rural areas.

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# Socio-Economic Processes Functioning and Innovation Education Development



Reznik Nadiia , Novykova Innola , Linovytska Olesya ,  
Nykytiuk Oleksandr , Kolenko Yulia , and Holovnia Yulia 

**Abstract** This article presents the results achieved in the process of a comprehensive solution to an important problem: the development of the theory and methodology of management of a higher educational institution based on an innovative approach. The theory of management of a higher educational institution, as a complex socio-economic system, based on the study of the causes and general patterns of the development of universities, which implies the implementation of its competitive advantages by the university on the basis of an innovative approach, has been developed and supplemented. It has been substantiated that the genesis of innovative approaches to the development of the system of higher professional education is an example of an increase in the stability of the system in the evolutionary period of development—the preservation of a certain specialization of subsystems, which consists in the development of new, including distance learning, forms of training by operational subsystems, while maintaining the traditions of scientific research. Activity and continuity of scientific knowledge in conservative subsystems. The

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R. Nadiia (✉)

National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine

e-mail: [nadya-reznik@ukr.net](mailto:nadya-reznik@ukr.net)

N. Innola

Institute of Innovation Education Kyiv National University of Construction and Architecture,  
Separated Structural Subdivision, Kyiv, Ukraine

L. Olesya

Bogomolets National Medical University Kyiv, Kyiv, Ukraine

e-mail: [q45ua@ukr.net](mailto:q45ua@ukr.net)

N. Oleksandr

Kyiv Agrarian University of the National Academy of Agrarian Sciences of Ukraine, Kyiv,  
Ukraine

K. Yulia

Bogomolets National Medical University, Kyiv, Ukraine

H. Yulia

Kyiv National University of Trade and Economics, Kyiv, Ukraine

e-mail: [y.golovnia@knute.edu.ua](mailto:y.golovnia@knute.edu.ua)

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methodology of management of a higher educational institution based on an innovative approach, methodological approaches to improving the management system of a higher education institution have been developed, a system for assessing the competitive position of a higher education institution, including determining the features of the development of a competitive situation in the educational services market, has been proposed. The made theoretical generalization of the formation of competitive universities in the market of educational services deepens the content of methods of applying self-organization laws to socio-economic systems, methods of managing business processes of a university based on innovative approaches. The inclusion of the main provisions of the theory of self-organization in the management system will contribute to the best interpretation of the process of transition of a university to a new qualitative state in order to develop appropriate principles, methods and forms of its management. The developed methods allow the systematization of information material on the innovative development of the university; optimization of the distribution of funds, promptly responding to constantly changing conditions. The distinctive features of this article are the consideration of the process of functioning of a higher educational institution from the point of view of innovative and synergistic approaches, as well as the formalization of the transition of the higher education system to a new qualitative state with the development of innovative forms of educational technologies and the preservation of the traditions of scientific activity, the continuity of scientific knowledge. The application of the developed methodology will be able to contribute to increasing the stability of the university system by developing new, innovative forms of teaching by operational subsystems, while maintaining the traditions of scientific activity and the continuity of scientific knowledge by conservative subsystems. This will make it possible to form higher educational institutions of a new type—innovative universities, whose activities will be carried out within the framework of the priorities and targets of the state for the development of education as the most important resource for the formation of a new economy based on knowledge, which, in our opinion, is a solution to an important national economic problem.

**Keywords** Institution of higher education · Competitiveness · Innovation · Management

## 1 Introduction

The divisions of the university—the centers of financial responsibility—must constantly ensure that funding from different sources is maximum and lasting, that is, to conduct a kind of intra-firm competition based on intra-firm self-organization. This means that they must, competing with each other with a high degree of freedom, bring the entire system of the university into a new qualitative state of the innovative university. For this purpose, it would be advisable to consider the very concept of the

competitiveness of a university and the possibility of assessing its competitive position. This would contribute to the orientation of both the university departments in the field of competitive relations and the correct choice of the options for innovative strategies by the university administration.

The term «competitiveness» is widely used when talking about goods (works, services) of industrial and personal consumption. However, it is rarely used in assessing the performance of higher education institutions. This state of affairs is due to a number of reasons. First, the services provided by universities are of a special kind. Their peculiarity is that they have a deep social orientation. Secondly, higher education, acting as a conduit for everything new and advanced, has a conservative basis. Conservatism here means the selection and careful preservation of the best domestic and foreign traditions in education. Third, there is a special nature of competition between universities. As a rule, each university has a unique history, well-established traditions that have developed over the years in the educational field. Many universities often do not need additional advertising; they carefully protect their image, since changes in the status of a university for the better or worse do not go unnoticed by the public.

## 2 Literature Review

The works of the following domestic and foreign authors: P. Altbach, V. Andrushchenko, N. Vasylenko, A. Gayardon, T. Dobko, M. Zubrytska, are devoted to the study of the processes of transformation of the higher education system, its institutional environment, relevant reflections in the research methodology. Ilyin, S. Kalashnikova, K. Calhoun, V. Flint, K. Kerr, J. Lombardi, V. Lugovoi, T. McCowan, E. Maynardes, S. Panchyshyn, L. Ramble, D. Stanfield, J. Heisman, I. Frumin, A. Ursul, R. Chan, L. Shevchenko, Y. Shimmy and others. Theoretical and applied bases of research of internationalization as a special factor of competitiveness of higher education system in the conditions of globalization, problems of regulation of processes of educational mobility are covered in works of T. Adams, N. Varges, G. Vita, K. Gaushildt, J. Gale, L. Hawthorne, D. Gudzik, D. Deidorf, V. Yefimov, D. Kilik, A. Lapteva, J. Knight, J. Nilsson, L. Semiv, B. Sivinskaya, R. Chaudakha, and others. The works of N. Bar, S. Brint, E. Gazelkorn, A. Grin, M. Dominguez, T. Esterman, M. Lima, E. Maynardes, A. Oleksienko, Y. Rashkevich, J. Ferreira, D. Grandei, I. Griseni, A.-L. Klaes-Kulik, O. Sharova, L. Schindler, G. Schomburg and others. The works of L. Antonyuk, O. Yeliseeva, O. Ilyash, D. Ilnytsky, S. Kvita, A. Kolota, O. Kuzmina, V. Lypova, I. Moiseenko, T. Obolenska, A. Pavlenko, I. Revak, I. Tymoshenko, A. Sidorova, R. Fatkhutdinov, L. Shaulska, A. Shevchuk and others.

Summarizing the scientific achievements of foreign and domestic scientists on the subject, it is important to note that higher education, as a special type of economic activity and the object of competitiveness management, became the subject of study of economics and management only in the second half of XX century. outlined «central» research methodology and due to a combination of socio-cultural, political

and economic functions requires an interdisciplinary approach to solving problems of management efficiency.

### 3 Methodology

The methodological basis of the research in the article is a set of general scientific and special methods of cognition. During the formation of the conceptual and categorical apparatus the following methods were used: analysis and synthesis; dialectical and system-structural; historical and logical analysis; induction and subtraction; international comparison. Methods of logical generalization and extrapolation of trends are used to substantiate approaches to developing a basis for the introduction of innovations in the activities of higher education institutions. Modeling the selection of optimal innovation projects aimed at organizing effective competition of higher education institutions in an innovative environment is carried out by the method of hierarchical analysis.

### 4 Results

The changed economic conditions of management have set new tasks for universities, and universities have become much freer in their implementation. There is no unified terminological approach to defining the essence of «competitiveness of a university». This situation significantly complicates the development of effective methodological approaches to the assessment, analysis and regulation of the university's activities in the market educational environment. In our opinion, in the market of goods, including the market of educational services, the following definition should be applied: competitiveness is a higher ratio of the aggregate of qualitative characteristics of a product and the costs of purchasing and consuming them, as compared to competing goods or a specific segment of it. Competitive should be considered a product or service in which the aggregate useful effect per unit of cost is higher than that of the rest, and the value of none of the criteria is not unacceptable for the consumer. Competitiveness is a multidimensional concept that means that a product meets market conditions, the specific requirements of consumers, not only in terms of its quality, technical, economic, aesthetic characteristics, but also in terms of commercial and other conditions for its implementation (price, delivery time, distribution channels, service, advertising). Moreover, an important component of the competitiveness of a product or service is the level of consumer costs over the period of their operation.

Considering competitiveness as the most important factor in the sale of goods and services on the market or the ability to retain a part of the domestic market, four levels of competitiveness are distinguished. The first level is the competitiveness of a product or service, the second is the competitiveness of the firm, the third is

the competitiveness of the industry, and the fourth is the competitiveness of the country. The above classification is based on micro- and macroeconomic analysis, while there is also a spatial approach. This approach presupposes the need to study competitiveness at the meso-level, as well as to analyze the essential features of the concept of «competitiveness of a university».

Prominent Western experts in the field of management M. H. Mescon, M. Albert and F. Khedouri note that the competence of the leadership lies in the fact that «the company does something better than its competitors, that is, it remains competitive», which allows attract and retain consumers (Mescon et al. 1992). According to F. Kotler, the competitiveness of an organization means that the key to achieving its goals is to identify the needs and requirements of target markets and ensure the desired satisfaction in more efficient and more productive ways than competitors (Kotler 1990).

To effectively solve competitive problems, universities need to create a high-tech educational environment that provides:

- high level of quality of educational services;
- minimization of training costs;
- mobility in the market.

To make the region's higher education system competitive in the educational services market, it is necessary to provide the necessary localization conditions and promote the competitiveness of educational institutions. Moreover, the region should be attractive not only for the universities themselves, but, in the context of globalization, the increasing role of qualified personnel and innovations, and for the population. Therefore, the concepts of «regions of knowledge», «cities of knowledge» are becoming relevant.

The ability of a university to timely adapt to changing environmental conditions is expressed by a system of indicators that characterize the state of its competitiveness. In our opinion, the definition is correct: «Competitiveness is an integral (aggregate) characteristic of the production process and reflects the level of its compliance with a specific social utility». In other words, if a university is able to timely adapt to constantly changing conditions, then this is reflected accordingly in the level of its competitiveness.

Indispensable signs showing the essential content of the concept of «competitiveness of a university» are:

- firstly, superiority over competitors in a number of defining indicators (financial and economic, marketing, material and technical, personnel and socio-political);
- secondly, the functioning of the university in a crisis-free regime;
- thirdly, the ability to timely adapt an educational institution to the changing conditions of the external environment.

Taking into account all of the above, we propose the following definition of the competitiveness of a university. The competitiveness of a university is its complex characteristic (for a certain period of time under the conditions of specific labor markets and the implementation of certain educational services), reflecting:

- a) superiority over competing universities in the quality of educational services provided,
- b) the ability to successfully implement existing and introduce new innovative educational programs, use modern information and communication technologies and respond in a timely manner to changing environmental conditions.

The regional market in the field of vocational education is determined, as a rule, by the following two basic factors:

- 1) the need for professional staff of enterprises and organizations in the region;
- 2) the individual's need for professional education.

The problem of increasing socio-economic activity is now acquiring a global character. Global trends in the economy also affect the processes in education in various countries.

Over the past decade, the global political and economic landscape has changed so much that this could not but affect higher education. Universities, institutes, schools and colleges in different countries have become participants in global competition—a phenomenon that is still completely unknown to higher education institutions. Today institutions compete with each other, competing for students, teachers, sponsors, for consumers of their graduates. They compete as scientific schools, as centers of professional careers, as centers for retraining and retraining of personnel. In the advanced industrialized countries, the period of understanding and awareness of the requirements and consequences of global competition in higher education has been replaced by a period of active action. The results of the research carried out by higher education allowed us to conclude that the leading universities have a completely definite development strategy, that is, almost any university expresses its mission in one way or another, so that as many members of society as possible find out what its purpose is. An analysis conducted by the International Association of Universities showed the main differences in the targeting of «leading universities» (with a high rating) and universities of «non-leaders». The goals of leading universities differ, first of all, in that they see themselves as co-creators of the future professional careers of their students, while «non-leaders» traditionally strive to prepare students for life in general. «Leaders» think in terms of the global economic community, and «non-leaders» in terms of society. The lack of a clear perspective on what new quality a student will acquire after completing a course of study at a university makes the educational institution less attractive to consumers of education. The best universities see their strategic task in realistically providing their graduates with the opportunity to be competitive in the dynamically developing global market economy. In these universities, the standard of education has become a complex educational «product» = «theoretical knowledge» + «practice» + «career».

Only universities with a developed system of business relations, professional orientation, organization of industrial practice and distribution of students can overcome such «barriers to entry» into the modern education industry. In addition, universities that actively use information and communication technologies in education have an advantage. These technologies are seen as opportunities to reduce student

costs by moving learning materials online. As a result, open universities and distance learning forms appear on the educational services market. The faculty profile for profit-making universities can be very different from that of a traditional educator at a regular university. He may be invited to read a separate course or on a part-time basis.

As part of educational functions, curriculum development, curriculum creation, educational service promotion, educational support and assessment can be conducted by different individuals. Each teacher can concentrate only on one of the areas. The tendencies of the globalization of education give rise to an essential question for any institution of higher education—how to achieve a competitive advantage and keep it in a rapidly changing competitive environment. In this case, competitive advantage is understood as how it is possible to obtain advantages in the educational services market by consolidating available resources and organizing them more efficiently. It is believed that no more than half of all existing organizations offering services to consumers in this segment of education have a competitive advantage.

Obtaining competitive advantages lies within the framework of resolving the issue of effective management of an organization, in this case an educational institution. Many organizations are developing different approaches to achieving competitive advantage. Some of them focus on the quality and strategy of continuous improvement of the organization, others—on the strategy of concentrating resources to integrate new technologies. Despite the different approaches, most of the strategies are similar. So, in the 1980s, the dominant theory in strategy development was the competitive forces approach, developed by Harvard Business School professor Michael Porter. The author argued that the actions of the organization should be aimed at creating external competencies through the capture of profitable market positions. External competences include, first of all, the differentiation of products or services as a result of the scale of the proposals. Usually, in such practice, the object of analysis and decision-making is a certain product or type of service. As a rule, with this control method, issues of positioning, cost, and the like are discussed. Another approach focuses on creating a competitive advantage based on the internal performance of the organization (resource-based view). It is assumed that the achievement of a long-term competitive advantage is carried out through the strengthening of internal competencies and performance. The concept is the development of organizational change in relation to strategy issues. This approach considers, first of all, the specific capabilities and assets that determine the success of the organization. The hallmark of this approach is that a mature organization will be able to compete in any market.

Since key competencies affect the success of a number of services, in order to increase its growth potential, a corporation must move from seeing itself as a set of end products and services to realizing itself as a center for creating key competencies and their subsequent use. Thus, competition is shifting from a commodity versus commodity opposition to a company versus company opposition.

Core competencies are what a company, firm, or organization can do better than competitors. In recent years, another theory has emerged called the «dynamic capabilities paradigm». This concept is a holistic approach to understanding new sources of

competitive advantage. The dynamic capabilities strategy determines in which direction the existing internal and external competencies of the firm should be expanded in order to meet the changes in the surrounding world.

Management uses dynamic opportunities to combine, build and reform internal and external competencies. Dynamic capabilities are based on an organization's focus on processes rather than markets. Thanks to this approach, it is possible to create corporate competencies depending on the chosen strategy and the nature of the competition. It can be noted that the strategic approaches described above proceed from the assumption that competitive advantage is based on internal and external key competencies that make it possible to achieve and maintain the competitiveness of the organization or firm itself. This strategy involves the control of standards, system compatibility of products or services, and the work of functional teams. Such competencies are based on experience, knowledge, effective management and do not lose their value from their use. On the other hand, such competencies need to be improved; without constant application, experience is lost. The constantly changing conditions of the competitive environment will sooner or later make today's key competencies irrelevant. Consequently, competitiveness depends on the creation of future competencies. But in order to create competencies for tomorrow, special qualities are needed—dynamic capabilities. Building core competencies requires the accumulation and integration of skills both within and outside the organization. Therefore, in building core competencies, the ability to integrate different experiences is as important as the ability to create new ones. Dynamic capabilities are the ability to integrate experience, to develop and reform external and internal competencies in order to meet rapidly changing environmental conditions.

The experience of recent years shows that not all regional universities are ready to work in a competitive environment. Even the possibility of providing competitive educational services (which is very important in itself) does not allow many universities to effectively realize their advantage due to the lack of practice of using the entire range of marketing tools: flexible policy in the formation of the composition of specialties for which training is conducted; loyal pricing policy; close, sustainable relationships with enterprises and organizations that provide jobs for graduates; effective methods of organizing the educational process; continuity of pre-university and university education, etc. At the same time, the conjuncture situation in the regional markets of educational services is increasingly complicated by the gradual expansion of the market boundaries and the involvement of non-state educational institutions in it, actively using the experience of foreign universities operating in a competitive environment. The direct use of this experience in Ukrainian universities is often difficult due to its uniqueness, the lack of universal patterns of competitive behavior in the educational services market. In modern conditions, it is especially important for each university to correctly assess the current market situation in order to offer effective means of competition, which, on the one hand, would correspond to the current market situation and trends in its development, on the other, to the characteristics of a particular university, and, above all, regional. The first and most difficult stage of this work is the analytical understanding of the ways to achieve competitive advantages. In this regard, in the range of modern marketing problems



of the university, the following problems are of particular relevance: characteristics of the marketing environment of the university; analysis of the activities of other universities; assessment of the competitive position of the university's specialty in the educational services market.

Thus, dynamic capabilities reflect the ability of an organization to create new, innovative forms of core competencies in a given setting. Key competencies cannot be created by simply assembling existing items. But dynamic capabilities are even more difficult to create. To understand the opportunities, it is necessary to consider not the balance sheet items and financial resources, but the organizational structures and management processes that support core competencies, creating new opportunities. There is a way to achieve a competitive advantage through the achievement of a monopoly position in the service market. However, this approach can hardly be classified as a competitive strategy in management; it belongs to the sphere of political art. Considering the issues of key competencies and dynamic opportunities for gaining competitive advantages, it is necessary to note the importance of the system of corporate values, that is, beliefs and organizational norms shared by all employees. These provisions for the development of strategies that allow a company or organization to successfully achieve a competitive advantage, at the moment fully apply to the strategy of managing the development of educational institutions, most of which operate in a competitive environment.

The globalization of education has raised the issue of improving the quality of education and the process of its assessment in a different way. State authorities everywhere are the guarantor of a quality education system. However, the quality standards of education no longer depend only on the competence of the authorities and educational institutions, but are directly dependent on other active participants in the process. In a sense, the need was recognized for the development of national and, even on a larger scale, international standards for assessing the quality of education.

Stage 1. Characteristics of the marketing environment of the university. To understand the essence of the competitiveness of educational services, it is necessary to analyze the whole complex of subjects and factors that form the marketing environment of an educational institution.

Step 1.1. Characteristics of the subjects and factors of the marketing environment of the university. It is necessary to clarify the general concepts of the marketing environment and its components: macro- and microenvironment, as well as the external and internal environment of the university. F. Kotler defines the marketing environment as «a set of active actors and forces acting outside the firm and influencing the ability of the marketing management to establish and maintain relationships of successful cooperation with target customers». He refers to the macroenvironment as forces of a broad social plan, such as factors of a demographic, economic, natural, technical, political and cultural nature. However, further, giving a description of the marketing microenvironment (as an integral part of the general marketing environment), he includes in its composition the internal services of the enterprise—top management, marketing, financial, production and other departments. Thus, there is

a contradiction (possibly due to the fault of the translators) between the two definitions, as well as a confusion of the concepts of the internal environment of the firm and its microenvironment.

The macroenvironment is characterized by a system of global factors in which the firm is forced to act and on which it is not able to influence, but which must be taken into account in its marketing activities: socio-cultural, economic, technological, physical (natural), political and legal.

Step 1.2. Analysis of the activities of other universities. The analysis of the activities of universities should be considered as part of an ongoing process of market research aimed at ensuring competitive advantages. As practice shows, research of this kind is a prerequisite for the success of teaching technologies and services offered in the educational services market.

Research is effective when it is viewed not so much as an information tool, but as a means of providing university management with the necessary data to improve the potential of the management system. The determining link in setting the goals of competitive advantages is the marketing orientation of the university, based on the potential of its teaching and educational and research activities and market conditions. In this regard, it is advisable to start formulating the goals of the analysis with specifying the main priorities of the university in the field of marketing.

Stage 2. Assessment of the competitive position of educational services of universities in the labor market.

Step 2.1. Analysis of the market share of educational services of the university in the market labor. Since an educational service is a mixed good that meets personal (end user), group (employers) and public (government) needs, it is necessary to reflect these three aspects in its definition.

Firstly, from the standpoint of an individual, a citizen, an educational service is the process of transferring to the consumer a set of knowledge, skills and abilities of a general educational and special nature necessary to satisfy his needs in acquiring a profession, self-development and self-affirmation, which is carried out in close contact with the consumer according to established program and form.

Second, from the perspective of an employer, an educational service- this is the process of training (advanced training, retraining) of professional personnel of the enterprise, necessary to ensure its performance, maintain competitiveness and development in a constantly changing market environment.

Thirdly, from the position of the state, an educational service is a process providing expanded reproduction of the aggregate personal and intellectual potential of society.

From a substantive point of view, educational services at a university are characterized by a set of specialties to acquire which they are aimed at, as well as by the depth and volume of knowledge, skills and abilities transferred. In our work by educational service, we mean the specialty of the university. One of the most general expressions of the degree of competitiveness of educational services of a university is its actual market share in the total number of employed graduates of a particular specialty. The market share reflects the most important results of competitiveness, shows the degree of dominance of educational services in the labor market, the ability

to influence the volumetric and structural characteristics of supply and demand for the group of specialties under consideration.

Three circumstances are important: the indicator (the number of employed graduates), by which the share of competitors is determined, should be calculated taking into account the classification of higher education specialties; the considered geographical border of the labor market should be the same for the analyzed university; the calculation should be done for a fixed time interval.

Step 2.2. Building a schematic map of the state of a competitive situation. The final stage of the analysis of the activities of the university is the construction of a schematic map of the competitive situation, that is, the classification of educational services according to their position in the labor market.

Step 2.3. Characteristics of the competitive positions of educational services of the university.

Stage 3. Assessment of the competitiveness of the educational services of the university.

Step 3.1. Systematization of research methods for the educational services market. The objectives of the study of the educational services market are quite diverse. They can be search, that is, provide for the collection of some preliminary data that helps to consider the problem and develop a hypothesis. They can also be descriptive, that is, provide for a description of certain phenomena (for example, find out the number of applicants in a city and establish which of them would like to continue their studies at a particular university).

Step 3.2. Analysis of existing approaches to assessing the competitiveness of educational services.

Step 3.3. Substantiation of indicators of the competitiveness of educational services. The main object of influence of all resources of the university are students. Most of the resource flows are focused on them. An enterprise that attracts a student to work after graduating from a university forms its own set of assessment parameters. It evaluates, first of all, the ability of a person to perform specific duties, the ability to master new equipment, the desire to improve their activities and the performance of the enterprise.

In addition, to determine the system of indicators of the competitiveness of educational services, it is necessary to determine:

- the composition of the served specialties;
- directions of scientific and methodological research;
- volume of demand for provided services by region;
- the composition of the basic consumers of the services provided;
- distribution of funds by areas of activity and divisions;
- principles of maintaining and increasing the qualification level teachers and staff;
- principles of pricing policy for performed state and self-supporting services;
- indicators of preference for university services in comparison with competing universities and research organizations;
- structure of funding sources;
- the relationship between current consumption and investment in development.

Thus, the number of indicators used to assess the competitiveness of educational services of a university is quite large. Taking into account the existing approaches Ukrainian and foreign scientists to assessing competitiveness, we propose to combine the general set of performance indicators of the university and its structural units into 6 groups:

- efficiency indicators show the ratio of achieved results and expended resources;
- indicators of the quality of training reflect the degree of compliance of the educational service with the requirements of employers, state standards and consumer expectations;
- indicators of learning conditions characterize the degree of compliance of the accepted conditions of study and work with the requirements of sanitation, ecology and safety, as well as the provision of modern educational equipment, the availability and quality of educational and scientific literature;
- performance indicators assess the demand for university graduates in a specific specialty in the labor market;
- indicators of the potential of an educational institution show the capabilities of the university in educational and methodological, scientific and pedagogical, economic and economic activities;
- indicators of the adaptability of an educational institution reflect the responsiveness to the changing needs of society.

Step 3.4. Substantiation of methods and techniques for collecting the necessary information for analysis.

Step 3.5. Substantiation of methods of analysis of indicators. The indicators assessing the competitiveness of educational services have a different scale and different focus. Comparison of specialties in all indicators is possible using pattern recognition algorithms: methods for automatic classification of objects in a multidimensional space of attributes and factor analysis.

Step 3.6. The procedure for assessing the competitiveness of educational services. The procedure for assessing the competitiveness of educational services includes two aspects.

First, you need to analyze the array in such a way as to select the main characteristics inherent in the nature of the competitiveness of educational services. In other words, to determine the number and nature of the most significant and relatively independent characteristics. It is advisable to apply factor analysis here.

Second, specialties differ from each other by the presence of meaningfully different work, different proportions of creative, technical work of the teaching staff, the cost of equipment and technical material base, etc. It is important to analyze each educational service in order to determine the «leaders» market of educational services and «outsiders».

Step 3.7. Factorization of qualitative indicators of the competitiveness of educational services. The method of principal components is one of the most widespread methods of factor analysis, and a rather deeply developed apparatus for statistical

processing of multidimensional information. However, there are a number of limitations in the application of factor analysis, including the principal component analysis. These methods are developed for quantitative indicators, and the factorization of qualitative indicators in theoretical terms is not sufficiently developed. Indicators reflecting the competitiveness of the production of educational services include both quantitative and qualitative, or attributive, features. Signs, the values of which are expressed in numbers, are quantitative. Attributive features do not lend themselves to direct quantitative or numerical measurement, their values are expressed by verbal interpretation. Discrete, random variables (in our case, these are quantitative and qualitative features) are measured on different scales.

Stage 4. Choosing a strategy of competition in the market of educational services of regional universities. The strategy of competition, which is the basis of the competitive behavior of the university in the educational services market, is the central point in the strategic orientation of the university. All subsequent marketing actions of the enterprise depend on the correct choice of the strategy of competition. This circumstance determines the need for a thorough justification of this procedure.

Survival objectives are different from strategic development objectives. It is necessary to make changes in the activities of departments: to increase the financial independence of departments, to regulate and strengthen control over the spending of public funds, to reduce the current expenses of the university, to liquidate departments that do not take significant part in the educational process. All actions should be aimed at increasing the responsibility and economic rights of the heads of faculties, departments, departments; to develop an economic view of the department's work results from managers and an assessment of associated costs; to develop the subdivisions' interest in attracting extra-budgetary sources. Therefore, the main selection procedure should be a balanced assessment of the strengths and weaknesses of each strategy and the real capabilities of the university, taking into account the competitive position of educational services in the labor market.

## 5 Conclusions

Thus, the assessment of the competitive position of the educational service of the university allows solving a number of interrelated tasks:

- to determine the peculiarities of the development of the competitive situation in the market educational services in order to most objectively determine the budgetary funding quota;
- to establish the degree of dominance of a specific specialty of the university on the labor market for the organization of the rational use of both budgetary funds and funds of the population for the training of specialists in the region;
- highlight the closest competing universities and establish the relative the position of the university among the participants in the educational services market;

- when developing a university strategy, rely on information about universities - competitors in the region;
- reasonably approach the development of a competition strategy, taking into account the competitive position of the university's specialties in the region and taking into account the peculiarities of its market environment.

It is possible to formulate a number of tasks that need to be solved in order to improve the education system at the regional level, grouping them into the following programmatic system of priorities:

- creating equal opportunities for access to education for different categories of the region's population (including through the development of distance education);
- creation of a new financial mechanism for education management and conditions for improving the quality of education;
- formation of mechanisms of state and public administration regional education system;
- optimization of the network of regional educational institutions;
- formation of an effective program for the development of personnel for the regional education system;
- development of partnership relations between the regional education system and other organizations and social institutions;
- ensuring social protection of pupils, pupils, students and employees of the regional education system.

As shown above, the market alone cannot ensure the implementation of the listed priorities. They can be realized only through the appropriate development of the system of state and public management of the educational space, which also has its own problems.

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# A Conceptual Model for Implementing Gamification in Education and Its Impact on Academic Performance



Omar Hasan Salah  and Qadri Kamal Alzaghah 

**Abstract** Gamification has numerous educational benefits, including increased student engagement, motivation, and understanding as it provides a fun and enjoyable learning environment, resulting in high academic performance. In non-game contexts such as education, gamification employs game-based elements such as mechanics, aesthetics, and game thinking to engage people, motivate action, improve learning, and solve problems. Prior research has primarily examined the effects of gamification on young adults, whereas other demographic groups, such as older adults, have received less attention. A well-designed gamification framework is required to create effective gamified learning experiences because using a poor framework can negatively affect student learning and motivation. Therefore, this study proposes a conceptual model that can be used to investigate in the relationship between gamification in education and self-efficacy and their effects on academic performance among Palestinian students and which also takes into account the potential moderating roles of gender and age in that relationship.

**Keywords** Gamification · Palestine · Education · Academic performance

## 1 Introduction

Since the emergence in December 2019 of the Sars-Cov-2 virus (commonly referred to as COVID-19), the development of educational tools compatible with social separation has become a key strategic focus, as million students globally have had to limit their movements and attendance at educational institutions to reduce the spread of the COVID-19 pandemic. Thus, nearly all educational provision rapidly shifted to a distance learning model in order to provide adequate social distancing (Nieto-Escamez and Roldán-Tapia 2021; Salah and Alzaghah 2021).

Traditionally, online education was a static mode of unidirectional instruction where the learner was given educational information. However, since the time of Socrates, it has been widely recognized that interactional learning is significantly

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O. H. Salah · Q. K. Alzaghah (✉)

Palestine Technical University–Kadoorie, Tulkarm, Palestine



more efficient for successful knowledge acquisition. Indeed, it has been found that effective classroom teachers incorporate some level of interaction into their instruction. While one-to-one tutoring is unquestionably the ideal form of education in the majority of cases, it is not scalable in practice. Also, learning must often take place entirely or in part remotely due to a lack of time, space, or funds, or due to the remote geographical or political location of the learner. Thus, the promotion of a more positive e-learning experience is critical in today's world (Tlili and Chang 2019; Alzaghal et al. 2020).

The engagement and motivation of learners has become a key challenge for the developers and providers of e-learning systems. As a result, teaching strategies that involve a high level of interaction and challenge, such as game-based learning, or gamification, have grown in popularity. However, the specific conceptualization of gamification has been the subject of some debate. As a result, several researchers have coined different terms closely related gamification methods. Gamification started in the digital media industry, but it did not catch on in education until late 2010 (Hamari 2017). In non-game contexts, gamification employs game-based elements such as mechanics, aesthetics, and game thinking to engage people, motivate action, improve learning, and solve problems (Borges et al. 2014).

Many studies have examined the effectiveness of using gamification elements in e-learning courses among teachers and students in a variety of contexts. For example, when gamification was applied to teachers working at the K-12 level were given online education through the gamification method and,

It was found to have a direct positive motivational effect on course participation (Bicen and Kocakoyun Aydogan 2020). Also, when teachers of grade K-12 students were given online education using the gamification method, it was discovered that the teachers' motivation increased (Kopcha et al. 2016). Furthermore, gamification can be a powerful and persuasive tool for motivating students (Hamari et al. 2014). For example, a study found that students who learned through play in groups performed better in the long run (Pesare et al. 2016).

Recently, there has been a surge in interest in gamified learning systems (Borges et al. 2014). Gamification is a technique that employs game design elements to motivate, persuade, and engage people in a particular attitude or behaviour in non-game contexts such as social networks, e-health, e-commerce, and educational systems (Borges et al. 2017). The techniques and resources used in digital games are specifically designed to motivate, captivate, and challenge the user to solve problems. These techniques are not always the centre of the system in gamification approaches, but they encourage users to use them (Ofosu-Ampong 2020).

Gamification has been successfully implemented in various contexts, including education, health/exercise, crowdsourcing, software development, business, marketing, and entertainment (Koivisto and Hamari 2020). For instance, the Khan Academy, an American non-profit educational organization, rewards users with points and badges for watching videos and completing mathematics problems. In the commercial world, customers of Domino's Pizza were given the option of customizing their pizzas using the gaming app Pizza Hero, which resulted in a 30% increase in sales revenue. Nike used gamified feedback to motivate over five million

users to exceed their personal fitness goals throughout the year. Samsung through the use of its gamified system, Samsung Nation, increased customer product reviews by 500% and site visits by 66%. And in the area of science, Foldit players solved a 15-year-old AIDS virus protein puzzle in just ten days (An 2020).

In light of the above, the benefits that the use of gamification elements may have for the learning environment cannot be overestimated. It is therefore unsurprising that the idea of using gamification in education is becoming increasingly popular. The successful utilization of gamification in various other settings has heightened this interest (Dominguez et al. 2013; Ryan 2012; Borges et al. 2014).

The main goal of using game elements in the educational context is to increase students' involvement, motivation, and understanding through a fun and enjoyable learning environment, resulting in high academic performance (Khaleel et al. 2016). This is supported by studies that have shown that participants who received education through gamification found the process to be more engaging (Chen et al. 2016; Pesare et al. 2016).

Also, in a related study, Polo-Pena et al. (2020) demonstrated that the experience of individuals participating in a gamification program affected their perceived self-efficacy in the practice of sport or exercise. Gamification is one method for increasing perceived self-efficacy (Dadaczynski et al. 2017). Self-efficacy refers to what a person believes they are capable of accomplishing. Self-efficacy is a powerful predictor of a person's willingness to try new things (Rachels et al. 2018). In the sports field specifically, the level of confidence that an individual has in their own ability to handle particular activities under particular conditions has been defined as self-efficacy in practice (Polo-Peña et al. 2020).

In addition, self-effectiveness is essential in regular sports or exercise because people with low self-efficacy may avoid doing a task or accept unrelated results. Those with a high level of autonomy, on the other hand, can fully engage in the activity, exert more effort, devote more time to it, and deal with more significant challenges. The more effective the perceived degree of self-efficacy, the more steps the individual can take to achieve his or her goal (Polo-Peña et al. 2020).

Many studies have shown that intrinsic motivation and extrinsic motivation influence student self-efficacy and academic performance (Wu et al. 2020; Fan and Williams 2010; Salah et al. 2021). Academic performance is defined as how learners can show their skills and knowledge through their learning experiences. Learning is followed by a test or exam administered by the teacher to test the students' performance after a specific lesson or course has been completed (Good 1979).

Social cognitive theory (SCT) posits that students' belief in their abilities strongly influences their academic success. Students with high academic self-efficacy believe in themselves and are motivated to improve their academic standing by challenging their preconceived notions (Musa 2020). Thus, the current study aims to find out whether the use of gamification can help students develop a stronger belief in their abilities and academic pursuits and whether gender and age are influencing factors in that relationship.

A literature review revealed various models and frameworks were employed to examine the relationship between gamification to education and self-efficacy and its

Impact on academic performance. This paper aims to develop a conceptual model based on the analysis of previous works to propose a new conceptual model that fits the need of or Palestinian students, which leads to enhanced academic performance.

## 2 Definition of Concepts

Gamification has sparked much interest in educational circles as it has been shown to have the potential to enhance the student learning process (Hakak et al. 2019). Gamification has emerged as a significant technological trend and promising results regarding its effectiveness in a number of domains have been reported. Prior research, however, has primarily examined the effects of gamification on young adults, whereas other demographic groups, such as older adults, have received much less attention (Koivisto and Malik 2020). Perhaps this is because gamification is frequently assumed to be more appealing and enjoyable to younger audiences as they often have a higher sense of self-efficacy and more experience with digital technologies than their older counterparts, and are thus more interested in such technologies (Koivisto and Malik 2020; Alzaghal and Mukhtar 2018; Alzaghal and Mukhtar 2017).

Yet, it is still unclear as to how self-efficacy and learning engagement work together to influence the academic performance of young people (Wu et al. 2020). According to Musa (2020), colleges should put policies in place that support students' self-efficacy for academic success, as self-efficacy is related to academic performance. One way that greater self-efficacy could be achieved is through the creation of create practical gamified learning experiences as well as thoughtfully designed products. However, basic game elements such as points, badges, and leader boards do not make a learning environment more engaging. Although the novelty of incorporating game elements or terms into teaching methods may pique students' interest initially, poorly designed gamification can harm student learning and motivation (An 2020).

### 2.1 *Social Cognitive Theory*

According to SCT, which was originally developed Albert Bandura (1986), people are capable of understanding, predicting, and changing their own behaviour when they are affected by individual and environmental factors (Putz and Treiblmaier 2015). Over the past four decades, Bandura and others have advanced the concept of self-efficacy, drawing on SCT in different fields. Today. To get people involved in a task, they need to believe that they have the necessary resources to successfully carry out that task. Whether the task involves working on a product or developing a strategic plan, if people do not believe they can bring all of their behavioural, cognitive, and motivational resources to bear, they will not make an effort and will therefore fail (Stajkovic and Luthans 1998).

In a related study, according to SCT, there is a direct relationship between awareness effort and self-efficacy, which leads to improved performance; proactive learning, according to SCT, facilitates the transformation of information into efficacy (Kaakeh et al. 2020). Essentially, people are agents of their own growth and development, and their actions and perceptions can determine their success or failure (Huang and Hew 2018). In the educational context, it has been shown that students' academic self-efficacy can be increased by verbal encouragement and physiological arousal inducement (Musa 2020). The proposed model is used based on the one proposed by (Polo-Peña et al. 2020), built on SCT. A few amendments were added to suit the study.

## 2.2 Model Factors

A significant amount of research has been conducted to find out if gamification has any effect on people (Polo-Peña et al. 2020). These studies focus on the factors that make it easier to adopt and use gamification, and the impact that this has on user behaviour; they do not analyse the effects of using game-based features on one of the key variables in taking up sports or exercise, namely, perceived self-efficacy.

In addition, in various research studies, it has been observed that academic self-efficacy correlates significantly with academic performance (Musa 2020). Research shows that higher academic self-efficacy results in better academic performance. Therefore, the current study investigates the relationship between gamification in education, self-efficacy and academic performance in Palestinian students.

The following subsections provide some information derived from the literature about the factors selected for the research model developed for the current study.

### **Gamification in Education**

Gamification is more than just a given experience; it will result in significant life, education, and marketing changes. Design researchers should emphasize gamification and use it to improve effective communication (Hsieh and Yang 2020).

Gamification is a popular term for the application of gaming theory in a variety of fields. Yet, its benefits could be more significant in education than anywhere else. The careful development and implementation of game elements may improve academic performance outcomes and student motivation. On the other hand, gamification software may take much more time to design and apply to educational activities. Thus, there are likely to be high operating and design costs involved in providing highly engaging activities for students (Puritat 2019; Salah et al. 2019).

### **Self-efficacy**

Self-efficacy can be described as personal confidence to execute a strategy to attain designated goals (Banfield and Wilkerson 2014). Self-efficacy is associated with how well a person performs their own actions to deal with a situation (Bandura 1982).

Academic self-efficacy refers to self-trust, self-reliance, and self-confidence. Academic self-efficacy belief describes how strongly people believe they can achieve their desired educational outcome(s) or goal(s) (Bandura 1982; Musa 2020). Academic self-efficacy is a term that refers to students' assessment of their ability to acquire or master new knowledge and skills, as well as organize and execute them to achieve specified academic performance levels (Musa 2020).

Additionally, academic self-efficacy is a term that refers to students' perceptions of their abilities to complete academic tasks and deal with education-related situations (Zimmerman and Kitsantas 2005). It is a precept that affect one's thoughts, patterns, and emotional arousals, all of which result in projected educational actions (Bandura 1982; Santrock 2017).

### **Academic Performance**

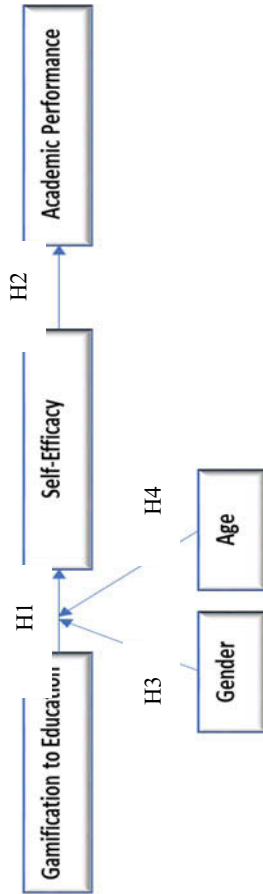
University education can determine a person's future career. Therefore, good academic performance at university is crucial. Academic performance is defined as the skill(s) and knowledge acquired by students during the learning process (Wu et al. 2020). When the learning process for a particular course is complete, students sit a test or an exam and their results are assessed in order to determine their level of academic performance (Musa 2020).

Furthermore, the studies proposed by Liu and Chu (2010) allow the observation of a significant relationship between the use of gamification (if it is closely related to educational content), motivation, and level of interest, all of which have a strong correlation with overall academic performance. It has also been argued that academic self-efficacy and academic performance are inextricably linked, either directly or indirectly, because they affect students' expectations in regards to their ability to deal with academic pressures and requirements (Abood et al. 2020).

## **3 Proposed Conceptual Model and Hypotheses**

A conceptual model is a collection of principles and ideas drawn from relevant fields of study to organize and structure a subsequent presentation in theoretical proposition. Based on the findings derived from a review of the related literature, the current study developed a conceptual model and a set of hypotheses, as shown in Fig. 1 below:

- H1: Gamification in education has a significant effect on the self-efficacy of Palestinian students.
- H2: Self-efficacy has a significant effect on the academic performance of Palestinian students.
- H3: Gender moderates the relationship between gamification in education and self-efficacy.
- H4: Age moderates the relationship between gamification in education and self-efficacy.



**Fig. 1** Proposed conceptual model

## 4 Results and Discussion

The current study attempts to bridge a gap in knowledge by creating an appropriate conceptual model to explore whether gamification is an appropriate strategy for helping students to perceive themselves as having greater self-efficacy which will affect their academic performance, taking into account the moderating effect of the participants' gender and age. The proposed model adopts many factors that have been used in different frameworks in the literature.

This study is considered as a conceptual study to create a new model of gamification in education, another future study will test this model in reality on real participants.

It is hoped that these studies' findings will have a practical impact in terms of assisting the government, the Ministry of Education, universities, policymakers, academics, teachers, administrators, and other stakeholders to ensure the successful implementation of gamification programs to improve academic performance in the future.

## 5 Conclusion

Learner engagement and motivation have become a challenge for the developers of e-learning systems. Gamification is a well-known technique for encouraging motivated learning. In non-game contexts, game-based elements such as mechanics, aesthetics and game thinking are applied to engage people and encourage them to take action, improve learning and solve problems. Gamification is also used to motivate, persuade, and/or engage people in a particular attitude or behaviour. Gamification is used in various fields, including education, health, fitness, crowdsourcing, software development, business, marketing, and entertainment. Gamification has been used successfully in many fields of life. Its success has encouraged its use in the education field, and it is of considerable interest in education circles due to its ability to improve the student learning process.

Self-efficacy is an individual's belief in his or her ability to carry out a specific strategy to achieve specific goals. One strategy that can be employed to increase perceived self-efficacy is gamification. Many studies have shown that individuals' experiences with gamification programs positively influence their perceived self-efficacy in the practice of sport or exercise, which is thought to be a significant predictor of academic performance.

However, it is still unclear what roles self-efficacy and learning are involved in and how motivation affects academic performance. Some studies suggest that universities improve students' educational efficiency which is directly associated with their academic performance.

This study aimed to determine whether gamification is a good strategy for helping students perceive themselves as having more self-efficacy and how this affects their academic performance while controlling for gender and age.

Gamification models in education contain many success factors that are important in assisting students in perceiving themselves as having greater self-efficacy and influencing their academic performance. There are many models in the literature that have been used successfully to measure the effect of gamification on academic performance. However, there is still a need to conduct more studies in other countries including the education sector in Palestine.

The findings of this study are limited to generalization toward Palestinian SMEs, and those neighboring countries similar to Palestine in culture and situation. The study, however, fell short of covering all the SME industry groups in Palestine. Thus, future studies may examine the effect from technology in different industries, sectors, and economies.

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# Continuance Intention, Educational System Quality, Instructor Quality and User Satisfaction on Perceived Impact on Learning



Dyah Sugandini, Garaika, Yuni Istanto, and Rahajeng Arundati

**Abstract** This study examines the effect of perceived impact on learning in universities in the Special Region of Yogyakarta. This study emphasizes the external and internal individual factors that affect the perceived impact on e-learning. Individual external factors analyzed in this study were educational system quality, instructor quality, and satisfaction. The internal aspect is continuance intention; This research is a survey research with the respondents being university students. While the method used is quantitative. Data were collected through a questionnaire. This study used data gathered from 150 students. Data analysis uses the structural model with Partial Least Square-SEM 3.2.9. The results showed that the perceived impact on the learning model was accepted.

**Keywords** Perceived impact for e-learning · Continuance intention · Educational system quality · Instructor quality · Satisfaction

## 1 Introduction

E-learning has been widely used in student learning in universities. The adoption of e-learning has faced many obstacles, although some have been successful. Universities in Indonesia urgently need the successful adoption of e-learning to provide solutions related to learning that cannot be done during the Covid-19 pandemic. The COVID-19 pandemic has paralyzed many educational institutions, especially in universities. The reason is that many universities before the pandemic had never used e-learning. E-learning is only a discourse that has never been applied successfully. The readiness of online learning support facilities is also very limited. This condition makes researchers interested in examining how the perception of e-learning users is on the

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D. Sugandini (✉) · Y. Istanto · R. Arundati  
Universitas Pembangunan Nasional “Veteran” Yogyakarta, Jl. SWK Jl. Ring Road Utara No.104,  
Sleman, Yogyakarta, Indonesia  
e-mail: [dini@upnyk.ac.id](mailto:dini@upnyk.ac.id)

Garaika  
Sekolah Tinggi Ilmu Ekonomi Trisna Negara, Jl. MP Bangsa Raja Gumalang 27, Karang Jaya,  
Belitang, Kabupaten Ogan Komering Ulu Timur, 32382, Sumatera Selatan Palembang, Indonesia

perceived impact during online learning. The pandemic forced learning to be done online. Cidral et al. (2020) have conducted a study on e-learning research from 2001 to 2016. Cidral et al. (2018) showed that starting in 2001, the focus of e-learning was on adoption intentions, perceived benefits of content, and customization. E-learning research then began to develop to include satisfaction from 2007. In 2013, research focused on the success of e-learning and how student characteristics affect e-learning (Cidral et al. 2018). Luo (2021) also shows that previous research has focused on reliability and ease of access to technology. The current study of e-learning success is more focused on student–teacher attitudes and interactions. E-Learning philosophy focuses on the expansion of distance learning models (Alam et al. 2021). Continuous technological evolution refers to technological intervention in the learning process (Al-Fraihat et al. 2020). To analyze the e-learning adoption model, (Vanderschaaf et al. 2020) use the theory of Task Technology Fit (TTF) to investigate the suitability of technology with the tasks faced by its users (Chatterjee and Kumar Kar 2020). Goodhue and Thompson's TTF model defines that technology acceptance depends on how well the new technology fits the needs of a particular task. TTF is an extension of extending TAM by considering how charges affect usage intentions. The actions taken by individuals, technology is seen as a tool used by individuals in carrying out their duties. Performance impact refers to individuals' achievement of a portfolio of tasks (Yawson and Yamoah 2020).

This study aimed to analyze the perceived impact on learning caused by continuance intention, educational system quality, instructor quality, and user satisfaction. This research is essential because delays in the adoption of e-learning can be a scourge of learning failure at universities (Mehta et al. 2019). On the other hand, Cubric (2020) stated that research on the adoption of innovations in education is interesting because most e-learning innovations originating from higher education teaching practices fail to reach this critical mass point. Elia et al. (2019) show that the condition of universities is still troubling due to the lack of a pedagogical foundation for education at the technology level. The low awareness of teachers that technology can fix all the problems they face in class, both face-to-face and face-to-face virtually. This study discusses the perceived impact on learning which begins with a discussion of issues related to the adoption of e-learning. This study also discusses the theoretical basis used in the research, which includes perceived impact on learning, educational system quality, instructor quality and satisfaction. Finally, this study explains the contribution of the theory, the limitations of the research and some suggestions that can be put forward for future research.

## 2 Literature Review

### 2.1 *Perceived Impact on Learning*

Continuance intention is considered more important than initial acceptance in successful technology adoption (Venkatesh et al. 2012). Technology adoption research focuses on satisfying and maintaining relationships with users (Moore and McElroy 2012). User satisfaction in the e-learning system affects the continuity intention of a sustainable method (Lin and Wang 2012). Satisfaction is an antecedent of continuance intention. When users feel that e-learning services are satisfactory, users tend to intend to continue using e-learning services (Kumar et al. 2017). Continuance intention is believed to have a positive influence on user performance. In the context of e-learning, McGill and Klobas (2009) tested the success of the learning management system (LMS), and the results showed that the increasing use of LMS by students affected the perception of learning impact. User satisfaction has proven its validity and reliability as an essential measure of the success of information systems and e-learning systems (Kumar and Kumar 2020). User satisfaction is a determinant of the benefit construct. The effect of user satisfaction on the benefits achieved from the system is empirically found to be significant in the DeLone and McLean information system success model. Cachero-Martínez and Vázquez-Casielles (2021) explains that when users of an e-learning system are more satisfied, they use the system, and the benefits of using the system will be achieved. According to Cidral et al. (2018), perceived satisfaction explains 43.3% of the impact variance. Emerging strategies to increase satisfaction in higher education are obtained through a student-oriented approach. This idea focuses on how to satisfy students with the readiness of educational services so that students are loyal to the university (Cachero-Martínez and Vázquez-Casielles 2021).

H1: User satisfaction affects Continuance intention.

H2: Continuance intention affects the perceived impact on learning.

### 2.2 *Educational System Quality and Satisfaction*

Educational system qualifications are a significant resource in the modern information systems environment. The quality of the education system is determined by access to life, employment, health, and personal life opportunities (Zapfe and Gross 2021). Cachero-Martínez and Vázquez-Casielles (2021) states that the quality of the education system has a positive effect on user satisfaction. Cidral et al. (2018) note that there is a positive relationship between the quality of the education system and satisfaction.

H3: Educational system quality affects satisfaction.

### 2.3 *Instructor Quality and Satisfaction*

The role of lecturers in the success of e-learning has received attention from researchers in the e-learning arena. Cidral et al. (2018) found a positive relationship between lecturer quality and user satisfaction. The quality of teachers has a significant influence on student satisfaction with the e-learning system (Mtebe and Raphael 2018). Aspects related to teachers, including positive attitude, enthusiasm, recommendations to students, involvement with various activities (interactive and communication and responsiveness to students), also tend to influence e-learning systems.

H4: Instructor quality affects user satisfaction.

## 3 Research Methods

This research took 150 respondents to students who had never done online education before the COVID-19 pandemic. The data for this study were collected through a survey in the Special Region of Yogyakarta, Indonesia. The current research population consists of all active students in the Special Region of Yogyakarta, Indonesia. Respondents are students who are involved in online shopping. This research was conducted during the new-normal period of the COVID-19 pandemic, where many educational institutions were negatively affected by this pandemic. The recommended sample size requirement is ten times the number of structural paths (Hair et al. 2020). Data collection was used using a questionnaire. Data analysis tool using PLS-SEM 3.2.9.

## 4 Result

The description of respondents can be seen in Table 1.

The results of this study indicate that the instrument used to measure the variables used in this study is valid and reliable. They are shown from the value of convergent validity, discriminant validity, and AVE. Meanwhile, the reliability test is seen from the composite reliability and Cronbach alpha values. Valid and reliable data is  $>0.7$ , and the expected AVE value is  $>0.5$ ; each construct shown in Table 2 has criteria above the expected standard. Meanwhile, discriminant validity is evaluated by comparing the loading value on the intended construct to be greater than the loading value with other constructs. Table 2 presents the reliability and validity test results, which show that each loading value on the intended construct is greater than the loading value of the other constructs. Table 3 shows the Hypothesis model for this research.

**Table 1** Characteristics of respondents

| Characteristics of respondents                    | %    |
|---|------|
| Gender  |      |
| Male  | 45%  |
| female  | 55%  |
| Long time using the Internet                      |      |
| < 1 year  | 22%  |
| >4 years  | 12%  |
| 1–2 years   | 26%  |
| >2–3 years  | 20%  |
| >3–4 years  | 20%  |
| Amount  | 100% |
| Frequency of Using the Internet to Study In A Day |      |
| Internet Usage Frequency                          | (%)  |
| <1 h  | 2%   |
| >4 h  | 39%  |
| 1–2 h   | 27%  |
| >2–3 h  | 22%  |
| >3–4 h  | 12%  |

**Table 2** Construct reliability and validity

|                              | Cronbach's Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|------------------------------|------------------|-------|-----------------------|----------------------------------|
| Continuance intention        | 0.819            | 0.876 | 0.878                 | 0.604                            |
| Educational System Quality   | 0.797            | 0.857 | 0.816                 | 0.601                            |
| Instructor Quality           | 0.724            | 0.714 | 0.724                 | 0.572                            |
| Perceived impact on learning | 0.738            | 0.755 | 0.848                 | 0.650                            |
| Satisfaction                 | 0.776            | 0.702 | 0.775                 | 0.538                            |

**Table 3** Mean, STDEV, T-Values, P-Values

|  | Original Sample (O) | T Statistics ( O/STDEV ) | P Values | Hypothesis    |
|--|---------------------|--------------------------|----------|---------------|
| Continuance intention → Perceived impact on learning | 0.612               | 12.461                   | 0.000    | Supported     |
| Educational System Quality → Satisfaction            | 0.145               | 1.473                    | 0.142    | Not Supported |
| Instructor Quality → Satisfaction                    | 0.315               | 3.598                    | 0.000    | Supported     |
| Satisfaction → Continuance intention                 | 0.277               | 3.086                    | 0.002    | Supported     |



**Fig 1.** Perceived impact on learning model

This study indicates that education system quality can affect the perceived impact of e-learning by mediating user satisfaction. Satisfaction can be interpreted as satisfaction related to various aspects of the service it receives. E-learning satisfaction is directly influenced by the quality of the education system and the quality of teachers. The quality of the education system also affects the perceived impact of e-learning by mediating satisfaction. This satisfaction affects the intention to continue using e-learning which ultimately affects the perceptions that arise from students regarding the effects of e-learning (Fig. 1).

## 5 Discussion

This research model produces a positive and significant relationship except for educational system quality and satisfaction. This study is consistent with the research results conducted by Lin and Wang (2012), who found that user satisfaction has a positive and significant effect on continuance intention. This finding follows (Nugroho et al. 2019) and (Park et al. 2019), which state that when users feel that e-learning services are satisfactory, users tend to intend to continue using e-learning services. This study found that continuance intention had a positive and significant effect on the perceived impact on learning. This finding is in line with a survey conducted by Martinez-Arguelles and Batalla-Busquets (2016). In other words, the higher the level of continuance intention, the higher the perceived impact on learning. This study’s relationship between Educational System Quality and satisfaction resulted in a positive but not significant relationship. This result is not in line with the findings of Cidral et al. (2018) who found a positive relationship in this relationship. Instructure quality on user satisfaction in this study resulted in a positive and significant relationship. This is in line with the research conducted by Mtebe and Raphael (2018). These results imply that the higher the infrastructure quality, the higher the user satisfaction.



## 6 Conclusion

This research model has a significant and positive relationship on the hypothesis of Continuance intention to Perceived impact on learning, Instructor Quality to Satisfaction, and Satisfaction to Continuance intention. However, the relationship between educational system quality and satisfaction was found to be positive but not significant.

## 7 Limitations and Suggestions

Although this model has succeeded in forming a perceived impact on the learning model, it still needs to be evaluated on the limitations of this study. The possibility of regional/regional bias will present different characteristics of the behavior of the individual respondents in this study, so this finding cannot be generalized. Future research can examine similar research models in areas/regions that have similar characteristics to this study. The development of the conceptual model also still provides opportunities for further researchers by adding several variables that might affect the perceived impact on learning, including e-learning readiness, motivation, and self-efficacy.

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# Group Leader's Conflict-Handling Style in the Palestinian Universities Students – Southern West Bank



Marwan Said Jaloud

**Abstract** Whenever we find people differences the possibility of miscommunications, misunderstanding between them will appear; which could lead to different form of conflicts, therefore, Conflicts are unavoidable and inevitable in students' daily life. So when they happen, leader's role is not to prevent them but rather to resolve, reduces and manage them in an effective manner. This study aims to investigate the influence of the group leader's conflicts-handling style in reducing conflicts among students. A model was developed and tested by self-administered questionnaire to the Palestinians universities students-Southern West Bank. The study is limited to the perception of the respondents of the study. The study and data gathered were as of 2020.

The study aims to: 1) examine whether the group leader's conflict-handling style reduces conflicts among students 2) explore whether the group leader's negotiation skills reduces conflicts among students 3) determine whether the group's collective decision making reduces conflicts among students, and 4) pinpoint the moderating role of emotional intelligence in reducing conflicts among students.

A total of 600 questionnaires were distributed, with 510 being returned complete and valid. Results of the analysis suggest that the collaborative conflict-handling style is suitable to reduce conflicts among students. Moreover, collective decision making and having group leaders with good negotiating skills and high level of emotional intelligence were proved to be factors of reducing conflicts among students. Meanwhile, little differences in response based on various demographic indicators were observed. In order to reduce conflicts among students, efforts have to be put by universities to train students on several management and communication skills that would play a role in reducing the gap of trust among them. On the other hand, future research has to focus on the Islamic perspective of conflict management, and on how to prevent conflicts from happening rather than how to handle them as they occur.

**Keywords** Conflict management · Negotiation · Collective decision making · Conflict-handling style · Task conflict · Relationship conflict · Emotional intelligence

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M. S. Jaloud (✉)  
Palestine Polytechnic University, Hebron – West Bank, Palestine  
e-mail: [jalouds@ppu.edu](mailto:jalouds@ppu.edu)

# 1 Introduction

At the beginning of each semester, students—having known each other for only a short while—are asked to form groups and choose leaders, where usually a great share of the course grade is determined by these group-based assignments. In many cases, it seems that the wrong person is chosen as the group leader, either due to cultural factors, or misjudgments related to the physical appearance. In turn, this wrong choice of group leader causes severe challenges and embarrassment to the group as a whole, especially when making decisions regarding the assignments. This leads to conflicts among group members, and if not managed and resolved appropriately, these conflicts negatively would affect the final grade of the group as a whole.

In this study, the current practice of conflict management among the students of the Palestinians universities in the southern West Bank will be observed and analyzed. And, accordingly, this paper intends to highlight the root cause of this problem with the underlying factors, and then propose some possible solutions that would be of a great value to students and lecturers as well.

## 1.1 Problem Statement

Indeed, not only students are affected by this problem, but, also, lecturers get annoyed of the conflicting groups as they require more time in consultation and reach less frequently to agreements in their decisions. In all cases, reducing such conflicts is helpful to all parties. Although the theory of conflict management is well known, there is little empirical research that shows how Muslim students react in situations of conflicts. It is therefore hoped that this paper will help us better understand the practice of conflict management. In particular, this author wants to better understand the importance of the group leader in avoiding or managing conflict in the group.

## 1.2 Research Objectives

In the light of the problem statement, the researcher proposes the following research objectives,

1. To examine whether the students' conflict-handling style reduces conflicts among students.
2. To explore whether the group leader's negotiation skills reduces conflicts among students.
3. To determine whether the group's collective decision making reduces conflicts among students.

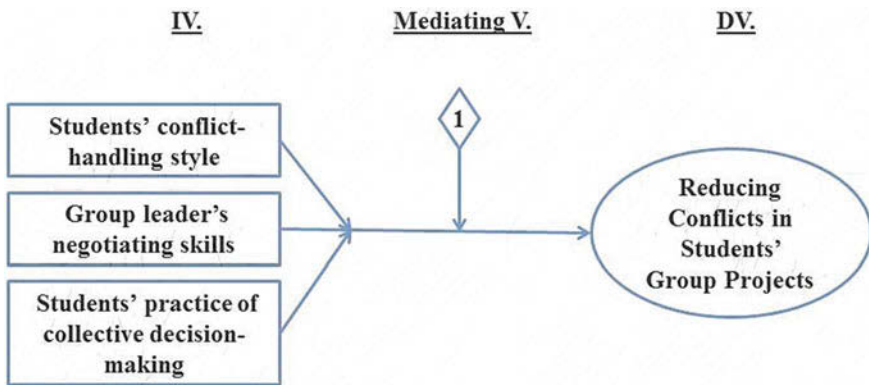
- 4. To pinpoint the moderating role of emotional intelligence in reducing conflicts among students.

### 1.3 Significance of the Study

This study is expected to have manifold contributions. At first, this research work would provide possible ways to reduce and manage conflicts in study groups, which is a major concern for both; lecturers and students. Secondly, this research work would also contribute to the academic knowledge, as very little empirical data is available about the practice of conflict management in education institutions worldwide in general; and this shortage is more clear in the Arab and Muslim world.

### 1.4 Theoretical Framework

The following graph (Exhibit 1) depicts the framework for this study, which was developed by the researcher, highlighting the independent, mediating and dependent variables respectively:



**Mediating Variable:**

- 1. Students' level of Emotional Intelligence.

**Exhibit. 1** The theoretical framework

## 2 Literature Review

### 2.1 *Definition and Nature of Conflict*

As a matter of fact, conflict is natural and healthy part of any organization, though it can be very painful if it's not managed effectively (Chung-Yan and Moeller 2010; Han and Harms 2010; Shih and Susanto 2010). Further, as highlighted, conflict arises when two or more interdependent parties perceive they have incompatible goals and scarce resources, and there is some kind of interference from each of them on achieving these goals or gaining these resources. For instance, if two individuals in an organization perceive that there is a promotion, they would recognize the conflict ahead, and they may deal with it, or try to avoid it. Indeed, the level of interdependence determines the potential of conflict to occur. There are four types of interdependence; pooled interdependence is the lowest form of interdependence resulting in the least amount of conflict. Other types of interdependence include sequential interdependence, reciprocal interdependence, and comprehensive interdependence. The level of interaction increases in the sequential one, thus the potential for conflicts to occur increases as well. Whereas, the possibility for conflicts to occur is at highest levels in the last type, the comprehensive interdependence, due to the complexity of interaction.

Indeed, there has been an ongoing debate on the definition of conflict in the various fields of study, particularly psychology, sociology and politics. And, the fact is that, as observed, there is no shortage of definitions of conflict—however, no single widely accepted definition exists.

In the broad sense, according to Robbins and Judge (2017), *conflict* can be defined as “*a process that begins when one party perceives another party has or is about to negatively affect something the first party cares about.*” According to them, this definition is flexible enough to cover the full range of conflict levels, and it encompasses the wide range of conflicts people experience in organizations and societies.

Other recognized definitions of conflict include, which defines conflict as “*the interactive process manifested in incompatibility, disagreement, or dissonance within or between social entities*”.

As can be seen above, the various definitions end up describing conflict as a process, and all have some sense of commonality; there are at least two parties (individuals or groups) involved; those parties do interact with each other in some way; and they perceive incompatibility between themselves.

In fact, viewing conflict as a process allows us to visualize the linkage between the inputs and outputs. For this, the major comprehensive process of conflicts was developed by Professor Stephen Robbins, the renowned organizational behavior expert. In his five-stage process he draws the observance of the incompatibility in views within the group, then the perception of the conflict is formed, which is followed by identifying the conflict-handling style or intention, which determines the behavior of the involved parties, and in turn, results in the increased or decreased group performance. His model is illustrated in Exhibit 2 in the next page.

| The first stage   | The second stage  | The third stage   | The fourth stage  | The fifth stage   |
|---|---|---|---|---|
| Potential opposition or incompatibility   | Cognition and personalization   | Intentions  | Behavior  | Outcomes  |
| Antecedent conditions<br>*communication<br>*structure<br>*personal variables<br><br><b>( leads to )</b> | Perceived conflict<br><br><b>or</b><br>Felt conflict<br><br><b>( leads to )</b> | Conflict-handling intentions<br><br>*competing<br>*collaborating<br>*compromising<br>*avoiding<br>*accommodating<br><br><b>( leads to )</b> | Overt conflict<br><br>*party’s behavior<br>*other’s reaction<br><br><b>( leads to )</b> | increased group performance<br><br><b>or</b><br>decreased group performance |

**Exhibit. 2** The conflict process

The idea of the model illustrated from “Conflict and Negotiation” by S. Robbins and T. Judge in *Organizational Behavior*, 16/e, p. 450.

This model helps us to understand more effectively and practically our topic of discussion, conflict management, as it is represented in the middle step of the process, and reveals to us the important role of managing conflicts in order to be able to get a positive result and an increased group performance.

**Types of Conflict**

As we mentioned earlier, in order to know whether a conflict is functional or dysfunctional, we have to look at the type of conflict, whether it is related to task, relationship, or process.

A *task conflict* is related to the content and goals of the work; *relationship conflict* is attributed to conflicts involving interpersonal issues; and a *process conflict* is one that is related to how the job gets done (Huang 2010; Parayitam, Olson and Bao 2010).

According to researchers, relationship conflicts are almost always dysfunctional and bad for the organization, as they involved personalizing issues and deviating the focus to an unrelated path. This is definitely a waste of time and efforts, and may develop into an uncontrollable stage of conflict. Usually, relationship conflicts involve high level of hostility between the conflicting parties, and that opens the floor for more personality clashes and reduces the mutual understanding (and sometimes respect) between both parties. Whereas, on the other hand, task and process conflicts are believed to be beneficial for the organization (Huang 2010; Parayitam et al. 2010; Rahim 2002).

According to George and Jones (2012), conflict, in the past, has been viewed as always bad and dysfunctional for the organization, because it leads to lower organizational performance. However, with reference to Huang (2010), the current view of conflict is that, if managed and negotiated carefully, it can usually increase the organizational performance.

## 2.2 Conflict Management

According to Rahim (2002), conflict management is “*the process of limiting the negative aspects of conflict while increasing the positive aspects of conflict. The aim of conflict management is to enhance learning and group outcomes, including effectiveness or performance in organizational setting*”.

## 2.3 Conflict Management Models

In order to assess the individual’s behavior in a conflict situation; that is, situation where the concerns of two people seem to be incompatible; Thomas developed a model identifying the primary conflict handling styles using two dimensions, *cooperativeness* and *assertiveness*. The first dimension, cooperativeness, refers to the extent to which one party attempts to satisfy the other party’s concerns; whereas, the other dimension, assertiveness, refers to the extent to which one party attempts to satisfy his or her own concerns. Based on this, five conflict handling styles can be identified; namely, *competing* (assertive and uncooperative), *collaborating* (assertive and cooperative), *avoiding* (unassertive and uncooperative), *accommodating* (unassertive and cooperative), and *compromising* (moderate on both dimensions; assertiveness and cooperativeness) (Thomas 2002; Robbins and Judge 2017). The following graph illustrates The Five Conflict-Handling Styles’ model (Exhibit 3);

*By the author and the idea of the model illustrated from “Conflict and Negotiation Processes in Organizations” by K. Thomas in Handbook of Industrial and Organizational Psychology, 2/e, vol. 3, ed. by M. D. Dunnette and L. M. Hough, p. 668 (Palo Alto, CA: Consulting Psychologists Press 1992).*



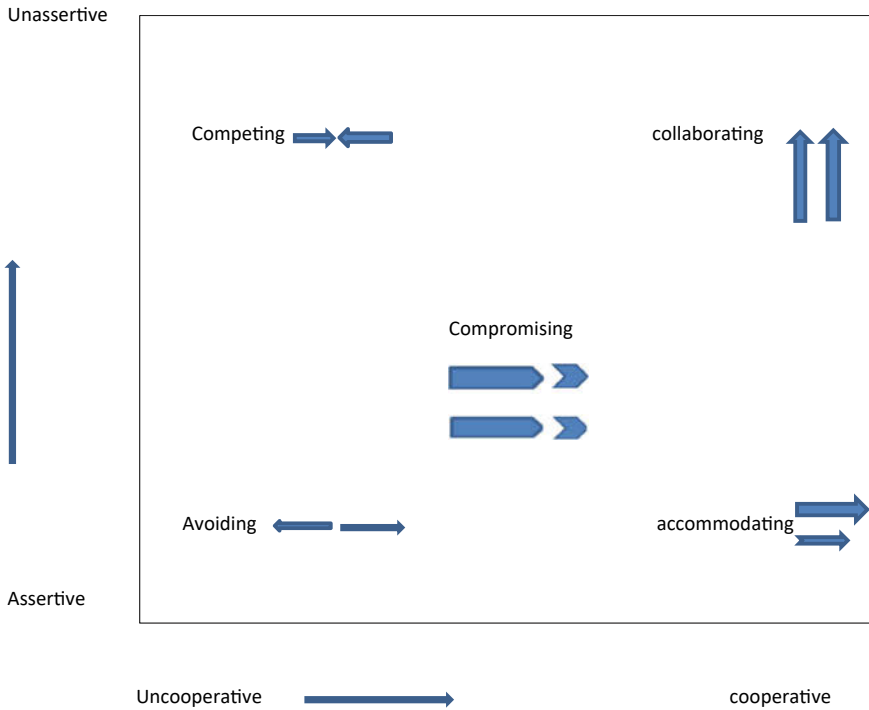


Exhibit. 3 The five conflict-handling styles

### 2.4 Negotiating in Conflict Management

According to Shermerhorn et al. (2010), negotiation can be defined as “the process of making joint decisions when the parties involved have different preferences”. In general, in negotiating, two interdependent individuals, or groups, who perceive they have conflicting goals, state and discuss suggestions on how to reach out possible agreement to their conflict in specific terms and conditions. Negotiation, indeed, is very important to both individuals and organizations in the sense that it affects the relationship between the negotiators and the way how they feel about themselves. This process, if done improperly, might negatively affect the organization. Therefore, depending on the importance of the issue and the time negotiation takes place, preserving healthy social relationship and behaving ethically the whole way should be as important as the outcome of the negotiation process. After all, the conflicting parties will, usually, continue working together in a team or at least for the same organization (Shermerhorn et al. 2010; Volkema and Fleck 2012; Robbins and Judge 2017).

## 2.5 *Outcomes of Conflict Management*

As people generally prefer positive conflicts, as they are functional and constructive, they lead us to better decisions, to more creativity and more innovation in problem solving (De Janasz et al. 2006). Further, researchers have identified several distinctive characteristics that define positive conflicts (that is; if resulted, a conflict is considered positive). Among which are: increased employee involvement, increased cohesion, increased innovation and creativity, positive personal growth and change in individuals, clarifying key issues concerning all, clarification of values and viewpoints, and increased organizational learning (De Janasz et al. 2006; Shearouse 2011; Robbins and Judge 2017).

In the meantime, conflict is considered negative, or dysfunctional, if it leads to form misperceptions about fellow parties, unresolved anger, personality clashes, lower individual's self-esteem or self-confidence, unclear grasping of individual's responsibilities, lower quality work, lower efficiency in performance, and if it leaves behind some unfinished issues or concerns of the conflicting parties (De Janasz et al. 2006; Shearouse 2011; Robbins and Judge 2017).

## 2.6 *Teams and Conflict Management*

Historically, it's been believed—and still- that teams are the cornerstone of any organization, and the performance is at optimum levels when teams are working effectively. However, taking into consideration that the possibility for conflict to occur more in teams, an increased amount of the literature confirms the fact that, sometimes, teamwork lowers organizational performance when conflicts are not managed and resolved appropriately, and when leaders be biased to either sides of conflict (Chen et al. 2012; Giacomantonio et al. 2011). In a conflict situation, team members might address the issues unproductively, and, over time, it could develop into a negative conflict where “*everyone achieves less*”! And this is the reason why more attention and care has to be taken in managing team conflicts.

Teams are everywhere. The reason behind this popularity is the belief that teams allow organizations to compete more effectively and efficiently, and make a better use of employee talents. In fact, the underlying assumption for the adoption of team-based management is that teams foster higher creativity, energy and performance (Robbins and Judge 2017).

At the individual level, an employee, being a team member, gets the opportunity to reach far beyond performing the job to becoming involved in achieving the organizational goals. This adds to the energy and creativity levels for the employee, and enhances decision making and problem solving skills for team members. All this is added to the fact that team involvement builds consensus, increases support for actions and creates a cooperative environment driven by organizational goals. Research supports the idea that conflicts can improve team effectiveness, but, on the

other hand, it is evident that conflicts are very difficult to control, and this is main worry for organization leaders and managers. Overall, some level of conflict has to be maintained in order to keep the organization, teams in particular, moving forward (Giacomantonio et al. 2011). Moreover, managers should realize that work teams require more time in decision making, and team members have to possess a good share of communication and negotiation skills to smoothen and lessen the conflict situations (Chen et al. 2012).

In addition to that, the size of a team has to be quite small to be acceptable and manageable. According to Robbins and Judge (2017), in order to reduce the possibility of conflict occurrences, a team shall not exceed 9 members; an average of 5 to 9 team members is commonly accepted in the workplace.

### **3 Research Methodology**

#### ***3.1 Research Design***

The descriptive method was used in this research as it fits best the nature of this study. For this purpose, self-administered questionnaires were distributed to the study's sample.

#### ***3.2 Population and Sampling***

The population of this study consists of the full-time bachelor students of the traditional Palestinian universities in the southern part of the West Bank, which includes Al-Quds University, Hebron University, Palestine Polytechnic University, and Al-Ahliya University—Bethlehem. The latest statistics of the Palestinian Ministry of Higher Education indicates that there are approximately 16,000 full-time bachelor students.

Simple random sampling (based on student presence in the classrooms) was used in this study. The sample for this research was 600 student; however, 550 questionnaires were collected, and only 510 were considered valid; resulting in a relatively high response rate of 85%.

#### ***3.3 Reliability Analysis***

In general, the higher the Cronbach's alpha (coefficient alpha) is, the more trust is put on the findings; that is, the more generalizable the result are. It's commonly accepted that  $\alpha > 0.6$  is required for the research to be acceptable (Serkanan and Bougie 2013).

**Table 1** Reliability statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| 0.70             | 30         |

Based on the results of SPSS analysis, the Cronbach's alpha ( $\alpha$ ) for this study was 0.7—as shown in Table 1 below; which is a quite high result.

## 4 Data Analysis

The questionnaire of this study comprises two sections; a) the demographic information of the respondents, b) respondents' perceptions and practices of conflict management.

### 4.1 *The Demographic Information*

This part encompasses an analysis of the demographic data of the respondents. Light will shed on five areas, namely; gender, age group, specialization, university, and the status in group (being a leader or a member in the group most of the time). These areas were chosen carefully in order to highlight probable differences in response among students. Further elaboration is to be done in the following section. The following Table 2 summarizes the demographic information of the respondents.

### 4.2 *Respondents' Perceptions and Practices of Conflict Management*

In this part, a detailed discussion on respondents' views and opinions with regard to conflict management will be presented. In order to answer the research questions, analysis will be divided into three sections; a) general perception on conflict management, b) respondents' way of managing conflicts, and c) factors affecting conflict management.

#### a) **General perception on conflict management**

In the first section, general questions were directed to the respondents in order to view their understanding of some basic elements of conflict management, including the definition and nature of conflicts, the causes of conflicts, and the main responsible of managing them.

First of all, when asked about their preference in doing assignments, majority of students reflected they prefer doing assignments in groups rather than individually.

**Table 2** The demographic data

|                                      | Frequency  | Percent | Cumulative Percent |
|--------------------------------------|------------|---------|--------------------|
| <i>Gender</i>                        |            |         |                    |
| i. Male                              | 184        | 36.08   | 36.08              |
| ii. Female                           | 326        | 63.92   | 100.00             |
| <i>Age Group (years)</i>             |            |         |                    |
| i. Below 20                          | 175        | 34.31   | 34.31              |
| ii. 20 to 23                         | 314        | 61.57   | 95.88              |
| iii. Above 23                        | 21         | 4.12    | 100.00             |
| <i>Academic Specialization</i>       |            |         |                    |
| i. Economics & Management Sciences   | 232        | 45.49   | 45.49              |
| ii. Information Technology           | 21         | 4.12    | 49.61              |
| iii. Engineering & Natural Sciences  | 38         | 7.45    | 57.06              |
| vi. Human Sciences                   | 45         | 8.82    | 65.88              |
| <b>v. Other</b>                      | 174        | 34.12   | 100.00             |
| <i>University</i>                    |            |         |                    |
| <b>i. Hebron University</b>          | 136        | 26.67   | 26.67              |
| ii. Palestine Polytechnic University | 147        | 28.82   | 55.49              |
| iii. Al-Quds University              | 129        | 25.29   | 80.78              |
| iv. Al-Ahliya University – Bethlehem | 98         | 19.22   | 100.00             |
| <i>Status in Group</i>               |            |         |                    |
| i. Leader                            | 174        | 34.12   | 34.12              |
| ii. Member                           | 337        | 66.08   | 100.20             |
| <b>Total</b>                         | <b>510</b> |         |                    |

The average response rate was 3.83, as shown in Table 3 (a) below, which is considered moderately high; however, the fact remains in mind that many respondents remained neutral with regard to this question.

The following three items (2 to 4) concentrated on the definition and nature of conflict. Based on the collected data, students seem to have an acceptable understanding of conflict and its nature and occurrence in study groups; they gave an average of 3.69, which is considered mediocre in this context. Meanwhile, they agreed partially that the vagueness of responsibilities increases conflicts, as they gave an average of 3.85 to item 4. However, a low average (2.98) was reported for item 3, which means they’re aware that having different perceptions does not necessarily lead to conflicts.

Further, items 5 and 6 directed the focus to respondents’ observance of conflicts in their lives. With this regard, students’ responses indicated a medium level of awareness for the conflicts occurring in their university environment; they reported medium and low averages for these two items, with 3.6 and 3.08 respectively.

**Table 3** (a): Students' general perception of conflict management

|    | Item  | St. Dev. ( $\sigma$ ) | Mean |
|----|---|-----------------------|------|
| 1  | I prefer to do assignments in groups rather than individually                         | 1.23                  | 3.83 |
| 2  | It's common and natural to have conflicts in study groups                             | 0.92                  | 3.69 |
| 3  | Different perceptions lead always to conflicts  | 1.07                  | 2.98 |
| 4  | Vaguely defined responsibilities/tasks increase the possibility of conflicts to occur | 0.96                  | 3.85 |
| 5  | I am always aware of conflicts as they occur  | 0.97                  | 3.6  |
| 6  | Conflicts occur in a regular basis in my academic life                                | 1.09                  | 3.08 |
| 7  | Most of conflicts are based on personal/social issues                                 | 1.06                  | 3.29 |
| 8  | Most of conflicts are based on study-related issues                                   | 1.02                  | 2.97 |
| 9  | Group leader plays a vital role in managing conflicts                                 | 1.08                  | 3.8  |
| 10 | Group members share <i>the same responsibility</i> with leaders to manage conflicts   | 1.15                  | 3.21 |
| 11 | Lecturers share <i>the same responsibility</i> with students to manage conflicts      | 1.22                  | 3.07 |
| 12 | The process of selecting group leaders in my university is highly effective           | 1.16                  | 2.93 |

Next, items 7 and 8 asked whether conflicts, in the eyes of respondents, are based on social and personal issues or based on study-related issues. The average answers were not high, as the given rates were 3.29 and 2.97 for items 7 and 8 respectively. Indeed, giving close answers to two contradicting items reveals little understanding of the meaning; however, giving a slightly higher average for item 7—i.e. for social and personal issues being behind their conflicts - implies that their conflicts are related to personal rather than study-related issues.

Then, the next three items (9 to 11) highlighted the issue of responsibility to managing conflicts. As expected, majority believes that the group leader plays a vital role in managing conflicts, with an average of 3.8. But, on the other hand, they responded with lower averages to items 10 and 11 (3.21 and 3.07 respectively); which means that they don't agree much with the idea that group members and lecturers share the same responsibility with the group leaders in managing the conflict situation. This is considered a negative response in the sense that it reveals low readiness among students to take the responsibility to manage their own conflicts.

Lastly, majority of respondents does not seem happy or satisfied with the process of selecting group leaders in their universities. The average rate reported here were 2.93. This reveals that this process is not effective, and needs improvement; and this is one of the aims of this study.

Table 3 (a) summarizes the results of the questionnaire for section (a);

### b) Respondents' way of managing conflicts

This section sheds light on the best practice to handle conflicts, or in other words, respondents' conflict-handling styles. The model developed by Thomas (2002) will

be utilized for this purpose. The model incorporates five styles—discussed in details in the literature above—, namely; competing, collaborating, avoiding, accommodating and compromising.

Based on the answers from items 13 and 14, few respondents seem to prefer the competing style of conflict management. They gave a somehow high acceptance average for item 13, with 3.74, and slightly lower average of 3.55 for item 14. This is quite similar to other studies in this field, as the majority of people believes competing isn't an efficient way of managing conflicts; for instance, Chen et al. (2012), Shih and Susanto (2010).

Further, slightly different from the competing conflict-handling style, respondents reported higher preference to the collaborative style. This appears in items 15 through 17; where the given averages were 3.95, 3.93 and 3.78 respectively. This means that respondents agree that accepting other party demands and understanding their views help reduce the conflicts, and thus, manage them more effectively. Further, giving a relatively high rate for seeking consensus in any decision in conflict situations reflect the readiness and preference to work in teams in an effective and productive way.

Then, when asked about the third conflict-handling style (avoiding), the majority of respondents disagreed with withdrawing from conflicts in order to keep themselves apart from problems. The rate given to item 18 was 2.69, which is relatively very low. This implies that students believe that following this way to manage conflicts is neither productive nor effective.

Next, in item 19, respondents reflected disagreement and disfavor to the accommodating style of handling conflicts. They reported a rate of 2.62, which suggests rejection of giving up own demands to keep the work going.

With regard to compromising, the fifth and last of the conflict-handling styles, respondents gave a rate of 3.41 to item 20. This rate is not very high, and compared to the collaborative style, the latter yielded higher rate that reveals stronger agreement. As the result suggests, respondents agree partially that everyone has to give up something to let work keep on.

Then, few general questions were asked with regard to conflict handling. For item 21, respondents disagreed strongly to leaving the conflict to be solved over time by itself. The average rate was among the lowest, with only 2.34, which suggests that group members have to put on immediate efforts to solve the problems as they occur. In fact, this goes side by side with other similar research works, as it is believed that conflicts get only bigger by time.

Further, items 22 and 23 inquired about the relation between the way of managing conflicts and the social relationship with the conflicting party, and whether it can be affected positively or negatively. Based on the answers, presented in Table 4 (b) below, respondents reflected a little effect of conflicts and their way of handling them on their social relationships. In the former, they reported an average rate of 3.04, which means that their styles of managing conflicts slightly affect negatively their social relationships. And in the latter, they haven't agreed much with the statement that getting work done is more important than maintaining the relationship with other parties; they gave an average rate of 3.09.

**Table 4** (b): Students' ways of managing conflicts

|    | Item  | St. Dev. ( $\sigma$ ) | Mean |
|----|---|-----------------------|------|
| 13 | The more powerful you are, the more <i>effectively</i> you can resolve conflicts                        | 1.22                  | 3.74 |
| 14 | It is better to give some concessions to the other party to win his/her confidence                      | 1                     | 3.55 |
| 15 | If conflicting parties accept some of each other's demands, conflicts can be resolved more effectively  | 0.88                  | 3.95 |
| 16 | Conflicts can be reduced if parties understand each other, and jointly search for alternative solutions | 1.16                  | 3.93 |
| 17 | I usually seek to have consensus in any decision in a conflict situation                                | 1                     | 3.78 |
| 18 | In a conflict situation, it is better to withdraw and keep oneself apart from problems                  | 1.33                  | 2.69 |
| 19 | It is better to give up own demands to other parties to keep the work going on                          | 1.22                  | 2.62 |
| 20 | In a conflict situation, all parties have to give up something to reach a solution                      | 1.11                  | 3.41 |
| 21 | If we wait for some time, conflicts would be resolved by themselves                                     | 1.24                  | 2.34 |
| 22 | The way I handle conflicts in study groups affects my social relationships with other parties           | 1.1                   | 3.04 |
| 23 | Getting work done is more important to me than maintaining the relationship with other parties          | 1.25                  | 3.09 |
| 24 | A third party should be asked to give a solution in a difficult conflict                                | 1.01                  | 3.73 |

Table 4 (b) highlights the results of the questionnaire with regard to the way respondents take to handle conflicts.

Lastly, a quietly high majority agreed that a third-party should be sought to help find out a solution in a difficult conflict. They reported an average of 3.73 to item 24. This reflects respondents' nature of having confidence in their ability to manage their own conflicts.

### c) **Factors affecting conflict management**

In this section, respondents' views regarding the factors (other than conflict-handling style) affecting conflict management will be presented. These other factors, as suggested by researcher, are: the individual/collective decision making, having good negotiating skills, and having leaders and members with high level of Emotional Intelligence. Now we go through each of the remaining items.

Firstly, items 25 and 26 asked about the process of decision making in the group. The majority of respondents revealed dissatisfaction if the leader makes individual decisions regarding the group work; the rate given was 2.22 in average; which is the lowest among all other items. Conversely, the majority revealed their preference to make collective decisions regarding the group work; where all members contribute fairly to the work. This result was expected, as no one likes to be ignored in the group. Furthermore, respondents reflected, in item 27, that having everyone in the



**Table 5** (c): Students’ response to CM factors

|    | Item   | St. Dev. ( $\sigma$ ) | Mean |
|----|--|-----------------------|------|
| 25 | I feel happy when the leader makes individual decisions                                | 1.23                  | 2.22 |
| 26 | I like to make collective decisions, where all members contribute fairly               | 1.03                  | 4.02 |
| 27 | If I have a different opinion, everyone must listen to me                              | 1.04                  | 4.06 |
| 28 | I like working with leaders that are good at negotiating win–win situations            | 1.05                  | 4.09 |
| 29 | I am good at negotiating win—win situations  | 0.99                  | 3.59 |
| 30 | Students with high levels of “emotional intelligence” are better at managing conflicts | 1.23                  | 3.2  |

group to listen to their opinions is a must (with an average of 4.06), and this may reflect a high level of ego among students.

Then, items 28 and 29 highlighted another factor, which is negotiating skills. Even though the majority of respondents revealed mediocre agreement that they possess good negotiating skills (3.59), they have reflected a great preference (4.09) to work with leaders who are good at negotiating win—win situations.

Last but not least, with regard to emotional intelligence, on the contrary, the average rate given was not as high as expected; respondents reported an average of 3.2 to item 30. This implies that a great share of respondents does not acquire enough knowledge about “EI”, as some have noted in the questionnaire. In light of the last two items, there is a clear need to train students on these necessary skills in order to develop students’ abilities and improve their conflict handling skills.

Table 5 (c) highlights the results of the survey questionnaire with regard to the other factors affecting reducing conflicts among students.

**Difference in Response Based on Demographic Variances**

In this part, the differences in responses based on the various demographic factors mentioned in the questionnaire were examined. These demographic factors include gender, age group, specialization, university and the status in group (being the leader or just a member in the group).

In fact, after conducting Independent Sample T-Tests and One-Way ANOVA through SPSS software, no critical differences in responses were found. This would suggest that the level of education in these universities does not vary that much.

However, in a similar study conducted by the first researcher at the International Islamic University Malaysia, it is observed that students there gave more positive responses, especially for the last subsection of the questionnaire; “factors of reducing conflicts”. IIUM students were inclined more towards cooperation and implementing collective decision making techniques as well as using good negotiation skills to prevent destructive conflicts. Indeed, the relatively low agreement—shown by Palestinian students—to the positive role of emotional intelligence and collective decision making in reducing conflicts suggests two things; either they have little information about the subject matter; or they have bad experiences where they could not use these

techniques in resolving group projects' arising conflicts. In both ways, universities have to put more efforts in improving students skills in these areas.

## **5 Findings and Recommendations**

Based on the discussion of results of the questionnaires, The researchers believe that the objectives of this research were fulfilled and follows here are the answers for each of the research questions.

### ***5.1 Does the Students' Conflict-Handling Style Reduce Conflicts Among Students?***

According to the data collected, the group leader's conflict handling style has a great effect on reducing and resolving conflicts if the appropriate style was used at the right time. Analysis shows that the collaborative style is most preferable among students. However, in the meanwhile, the competing style is the second most favored, and compromising style is very disfavored. This, indeed, explains why students reported a high level of conflicts in their study life currently. Therefore, results of this study are in line with other studies, mainly those highlighted by Robbins and Judge (2017), Chen et al. (2012), Shih and Susanto (2010).

### ***5.2 Do the Group leader's Negotiation Skills Reduce Conflicts Among Students?***

Based on data analysis, majority of students prefer to work with leaders possessing the ability to negotiate win—win situations. And cases from the real life confirm the fact that leaders with good negotiation skills are better able to handle and resolve conflicts. This adds another confirmation to the literature of the subject matter, especially the studies performed by Rahim (2002).

### ***5.3 Does the Group's Collective Decision Making Reduce Conflicts Among Students?***

The analysis of the quantitative and qualitative data shows that the involvement of all group members in decision making helps improve the outcome, and helps reduce the

conflicts in study groups. This, also, goes in line with numerous studies, especially the studies of Choi (2013) and Chen et al. (2012).

### ***5.4 What is the Moderating Role of Emotional Intelligence in Reducing Conflicts Among Students?***

As a matter of fact, emotional intelligence is believed to have a great impact on conflict management, not only on reducing and resolving conflicts, but, also, in avoiding them in the first place. This factor, however, is not supported well by literature nor by the collected data in this research. It's believed that this study has contributed to the field, but much more elaboration is still needed. Other studies that highlighted the role of emotional intelligence include Shih and Susanto's study conducted in 2010.

#### **Recommendations**

Researcher believe that further research efforts with concentration on reducing conflicts in the educational process has take part. Methods to improve students' levels of emotional intelligence and negotiation skills and their practice of collective decision making have to be developed and implemented through various training programs.

Higher education is a major investment by middle and lower income level families in Palestine. Therefore, more efforts have to be put in improving students' skills.

Furthermore, In order to reduce conflicts among students, efforts have to be put by universities to train students on several management and communication skills that would play a role in reducing the gap of trust among students as well.

On the other hand, future research has to focus on the Islamic perspective of conflict management, and on how to prevent conflicts from happening rather than how to handle them as they occur Ahmad (2012).

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# The Successful Factors of Online Learning for Malaysia Higher Education Students: Smart PLS-SEM Analysis



Nurhaiza Nordin , Nur Naddia Nordin , Nur Ilyana Amiiraa Nordin,  
and Nur Faiz Nordin

**Abstract** The purpose of this study is to look at the factors that contribute to the success of online learning in Malaysian higher education institutions. To evaluate the results, 352 samples were gathered and analysed using the Smart-PLS-Structural Equation Modeling (SEM) approach. Usability, technological competence, financial aid, and the function of the lecturer all play a part in motivating effective online learning for higher education institutions, according to the report. Except for technical abilities in online learning, all elements affect sustained good efficacy. The result revealed that all direct relationship were supported by the data except technical competencies. The study will help improve the online learning system and the study higher education institution are increasingly adopting learning as both an alternative channel for existing student to traditional classroom learning and as a way to expand their reach to new student. Adopting online learning and associated technology necessitates a considerable investment in terms of personnel, money, energy, and space, all of which must be justified by administrators and those in positions of educational leadership. For the recommendation, ministry of higher education should ensure that student can assess the internet and web where ever they are and ensure this is a the successful factors of online learning among higher education student.

**Keywords** Online learning · Financial assistance · Technical competencies · Usability · Role of lecturer · Smart PLS

## 1 Introduction

Schools and higher education institutions have been threatened by significant changes in different environments due to the COVID-19 and Malaysia Movement Control

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N. Nordin (✉) · N. N. Nordin  
Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Kota Bharu, Malaysia  
e-mail: [haiza@umk.edu.my](mailto:haiza@umk.edu.my)

N. I. A. Nordin · N. F. Nordin  
Universiti Malaysia Kelantan, Kota Bharu, Malaysia

Order (MCO). With digital devices and the Internet, students today grow up. Therefore, its practices are distinct from those of previous generations. As such, identifying these differences and designing educational products suitable for their learning styles, features and attitudes are the challenges faced by educational practitioners and designers. Technology such as internet most important in the education across the globe. Online learning is becoming increasingly popular. Over 6.5 million students took at least one online course in 2011, according to the annual report (Allen and Seaman 2011a, b).

Even if the distribution method has improved, it is still relatively young. The current study will look at a variety of characteristics that influence adult learners' performance and satisfaction in an online learning environment. Many research has been done exploring conventional delivery models such as classroom; comprehensive knowledge is still emerging about the online classroom. Online learning is usually used by working adults aged 25 to 50 years (Moore and Kearsley 2005).

Traditional face-to-face programmes lack the flexibility and adaptability that online education provides, which is especially important for students who must balance work, school, and family obligations. Almost every course nowadays has an online component, with the bulk of them using web-based technologies to provide course materials including syllabuses and assignments. Allen and Seaman (2011a, b). In several respects, online courses differ from traditional courses. Face-to-face education allows the instructor to assess a student's level of topic understanding based on nonverbal behaviors, allowing for classroom changes. Face-to-face education allows the instructor to assess a student's level of topic understanding based on nonverbal behaviours, allowing for classroom changes.

Teachers are unable to comprehend how nonverbal factors such as E-Learning styles, cognitive styles, self-efficacy, tenacity, self-regulation, emotional capabilities, and other factors may all influence a student's performance when utilising online learning; writing is the primary form of communication. (Berenson et al. 2008). According to Dabbagh (2007), self-motivated, self-directed, holding an internal control locus, and possessing above-average executive functioning, communication, interpersonal, and technological abilities are all characteristics of the ideal academically successful online student. Not every student possesses each of these skills. Moreover, with conventional, instructor directed, passive method of learning, some adult learners may be more relaxed. There is disagreement on the best learning styles for online learning performance. External factors such as suitable course/instructional design are significant, and faculty should take these factors into account when designing courses (Cercone 2008). There is a push for empirical studies that document the efficacy online learning of interventions based on direct systematic observation.

Schools and higher education institutions have been threatened by significant shift in different environments due to the COVID-19 pandemic and the Malaysia Movement Control Order (MCO). With digital devices and the Internet students today grow up. Therefore. Its practices are distinct from those of previous generations.

This study was conducted including public and private universities, with student participation for higher education institution. A web-based survey was developed

with online learning classes to investigate the factors of successful of online learning with using the indicator of role of lecturer, usability, technical competencies and financial assistance. The research aimed to collect 352 higher learning responses. Thus in this paper, the objective of this study is to investigate the factors of successful of online learning for higher institution students during the pandemic COVID-19.

The structure of this study is followed by literature review, proposed research method, research methodology, results and discussion and conclusion and recommendation.

## ***1.1 Literature Review***

Historically, schooling has concentrated on attending school, listening to lecturers and taking test (Albarrak 2007). This traditional teaching approach is evolving and new approaches are being introduced day by day. The introduction of IT in education is seen as an essential way to meet the needs of students, universities and society as a whole.

Education has historically been focused on attending classes, listening to lectures and taking exams (Albarrak 2007). This conventional method of teaching is changing and new techniques are being established day by day. The incorporation of IT into educational is seen as an important way of addressing the needs of students, universities and society as a whole. Fry (2001) suggests that, in order to compete in a competitive market for higher education, universities must accept new technological innovation that are capable of transforming education and industry. The steady and rapid growth of ICTs has led to the introduction in the education systems of e-learning programmes.

Education is now the primary subject of new and advanced higher education technology development and use. E-learning has been described in different literatures in distinctive way (Wagner, Hassanein and Head 2008). E-learning may generally be described as an educational system that uses technological resources such as the Internet, the intranet, the satellite and others to provide information. The primary objective of e-learning systems is to improve and enhance the link between students and lecturers in the entire educational system (Nycz and Cohen 2007). E-learning programmes are also used in distance learning education in various countries to enable students to obtain online degrees.

In various countries, e-learning programmes are also used in distance learning education, allowing students to receive degrees online. In 2006, around 3.5 million students took online courses at various stages of their higher education in the United States (Nagy 2005). Most of the universities all around the world, have provided e-learning systems to enhance the overall education systems and to enhance student success. In a complex and sophisticated environment, such as a learning management system or an online platform, the e-learning systems used can be as a basic projector or an interactive screen (Abouzahra 2011).

There is a push for empirical studies that document the success of online learning based on direct systematic observation. According to a 2011 study on online education conducted by the Sloane Consortium, 51% of academic authorities (i.e. deans/provosts) say that online learning is on par with face-to-face training, while 14% believe it is considerably superior. Studied by Swan (2003) it's still important to look at evidence of learning outcomes, as well as learn more about student characteristics and instructional design approaches.

According to recent studies Jones et al. (2011), studied on the utilisation of online learning tools, it enhances student and faculty achievement. They may, for example, shift the lecturer's role from information supplied to facilitator, allowing students to become more self-directed learners (Moore et al. 2011). Simaim (2011) found that is either too broad or multi-purpose, and it does not reflect students' perspectives on the impact of online learning services in higher education settings. Some researchers looked into the impacts of online data access on both lecturers and students, but none looked into the impact on the student-lecturer interaction. As a result, this study looks at the personal and emotional aspects of the student-lecturer interaction from the student's perspective, as well as the impact on students' expectations of online learning services.

According to Samia et al. (2019), some of the repercussions of that radical change are discussed and deconstructed, the most prominent of which being the shrinking and neglect of various sciences/fields. They believe that, in their current state, universities in this region face a serious challenge in generating indigenous knowledge that meets the needs of citizens in this region, knowledge that is informed by the culture, history, and geography of the region and responds to the specific needs of citizens in this region.

Usability is about the manner in which information is distributed and the material itself in e-learning (Feldstein 2002). Usability is the degree to which a product may be used by particular users in order to achieve specified results, productivity and satisfaction goals within a specified use context. Aldwyn (2013) argues that accessibility is an important condition in order to function in the internet world. So, to improve its usability, web design should concentrate solely on website users. Web design must satisfy clear user expectation and must also ensure that users are fulfilled without any obstacles to successfully complete web tasks (Yan and Guo 2010).

There are a few primary questions that spring to mind: In terms of student performance and happiness, what constitutes a good online course? Are there certain characteristics that pupils possess that lead to excellent learning outcomes? What features of online courses/educational design help students succeed academically and which ones hinder them? (Dabbagh 2007). Clearly, compared to traditional learning environments, attrition rates for online courses remain high, with estimates ranging from 10% to nearly 50% higher. (Moody 2004; Park 2007; Park and Choi 2009; Tirell and Quick 2012). Students see online courses differently than traditional ones. Negative expectations, especially incorrect ones, can lead to poor learning outcomes, such as decreased motivation and persistence (Muilenburg and Berge 2005). Negative emotions, such as discontent, might arise as a result of online learning (Berenson et al. 2008), especially if courses are poorly designed and students do not exhibit



the abilities needed to study online. Online learning will not be acceptable to every student. If this type of learning environment is not right for them, identifying the characteristics that contribute to online success vs failure might assist predict future learning outcomes and prevent students from enrolling in online courses.

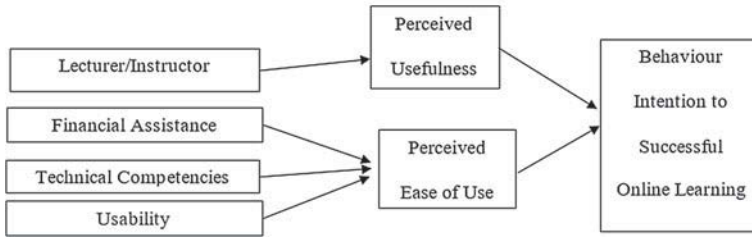
Recognizing unique features of individuals that contribute to online success vs failure can assist forecast future learning outcomes and avoid students from enrolling in online courses if this type of learning environment is not suited for them. In addition, knowing these learners' characteristics may help faculty create high-quality online courses that fulfil students' demands for suitable teaching techniques, support, and course structure and design, all of which can help students succeed and be satisfied (Dabbagh 2007).

In form of the financial technology (Fintech), there also have implication on education. FinTech has become a buzzword all over the world and has matured in recent years. Without a question, academia is a key player in the FinTech ecosystem. As a result, its participation in the development and use of financial technology is critical. FinTech firms require qualified personnel who are familiar with the industry's procedures. According to Malek and Kumar (2019), from the result, just as finance students make up a significant portion of customers of FinTech goods and services, they are also potential workers of FinTech firms. FinTech career possibilities are expanding, and finance students should take advantage of them.

Besides that, Nur Farida, Soesatyo and Aji (2021) found that the way a person treats, manages, and uses available money resources is referred to as financial behaviour. The goal of this study is to see how financial literacy and financial technology affect financial happiness by using financial behaviour as an intervening factor. The findings of this study show that financial literacy has no influence on financial behaviour, but the use of financial technology does. Financial literacy and the use of financial technology both have an impact on financial satisfaction. Financial conduct was also discovered to be a mediator between financial literacy and the usage of financial technology.

## 2 Proposed Research Model

The proposed research model consisting of factors related to students, teachers and management is elaborated in this section. In several studies, TAM was used to examine the actions of students and teachers using perceive usefulness (PU), perceive ease of use (PEU) and the intention to used and implement the online learning method (Selim 2003). The design of the proposed model is based on the TAM theory to influence the main factors such as PU, PEU and behavior intention (BI) on online learning. Four additional variable are included in this model design such as, usability, technical competencies, lecturer and financial assistance adopted from various empirical studies and literature. TAM was implemented in online learning acceptance as the most powerful and general theory than any other theories (Šumak et al. 2011). In Fig. 1 the proposed research framework supposed to be tested and



**Fig. 1** Proposed research model

analyzed that shows the constructs grouped into four categories to investigate the factors influencing students, teachers which is usability, lecturer, financial assistance and technical competencies towards successful implementation of online learning.

### 3 Research Methodology

Design of the conceptual framework on exploratory research is built based on the literature. Each has four independence or exogenous variable. Using Smart PLS software the conceptual model for the proposed framework is developed. Independent variables are main factors that will impact of successful online learning effectiveness in the higher education institutions. The dependent variables is the successful of OL which is the key factor in generating quality students for higher education. This demographic contains only whole students for higher education institutions who create applications.

The study was carried out in Malaysia on a random group of 315 students. First a qualitative analysis was performed for the higher education institution focused on interviews and experiences with the students. In higher learning institutions, a survey questionnaire was developed based on the conceptual framework and distributed to the different students. The sample size of any statistical system has a direct effect on the statistical strength. In general, when the distribution of dependent variables is distorted and the effect size is small, a researcher requires a fairly large sample size to detect the true difference. Hoelter (1983) proposed developing a model with an average sample size of 200. Hair et al. (2017) noted that, in the case of SEM, there are four elements that influence the criteria of sample size; misspecification of the model, scale of the model, deviations from normality and estimation procedures. If the model integrates all applicable construct and indicator into the theory, the effect of sample size may be negligible on the model's ability to be accurately measured to detect design error. If the model contains all applicable constructs and indicators to the theory, the effect of sample size may be negligible on the model's ability to be accurately measured to detect design error.

Smart PLS-SEM is beneficial when used with small sample sizes, but some researchers abuse this advantage by depending on extremely small samples compared to the population. According to Green (1991), the effect size is 84 sample size for the sample size using four number of predictors, so the total sample size used matched to the study. The data obtained from the questionnaire was entered in the MS-Excell and stored as a.csv file while can be supported by various statistical tools to perform reliability testing. The factors defined on the basis of the description in the conceptual model (Fig. 1) were operationalized by four endogenous and one exogenous and the variable influencing the software quality. For this research analysis, one exogenous and the variable that influenced software quality were operationalized and used to collect the data. Four independent (exogenous) variables and indicators were defined for this research study such as role of lecturer, usability, financial assistance and technical competencies on the successful online learning.

One dependent variable is online learning efficacy, since the conceptual model used exploratory research. Selected for all indicators were a multi-item, five-point, bipolar Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). For each independent variable the item ratings were summed to form a summary rating scale. However, as this is the first study of its kind inside exploratory testing, all the things were explicitly written for this research. Measurement model and assessment according to Hair et al., the formal evaluation parameters follow a two-step process with separate evaluation of measurement models and structural model. Next, construct validity should be tested for the assessment of the reflective measurement model. The validity of the construct consisting of two important components is convergent validity and discriminant validity. The convergent validity assesses factor loading, composite reliability and Average Variance Extracted (AVE) and the discriminating validity evaluates cross loading, Fornell and Larcker and HTMT.

Assessment of Convergent Validity Convergent validity refers to as “the extent to which a measure (indicators) positively correlates with alternative measures (indicators) of the same construct”. Table 1 shows the specifics of each constructs used in the conceptual framework and indicators associated with each construct are listed in the column name “Item”. First the composite reliability is verified and any value below the threshold values of 0.7 needs to be assessed. This is established by checking the indicator reliability values. Any values in the indicator which is below 0.4 should be removed from the constructs and any value between 0.4 and 0.6 can be retained if it increases the AVE and CR values. After removing the indicators from the constructs, the details of the remaining constructs and its corresponding convergent validity scores have met the threshold values for  $CR > 0.7$  and  $AVE > 0.5$  respectively.

## 4 Result and Discussion

### 4.1 Validity and Reliability Tests

Test for validity and reliability were performed to assess the questionnaire's consistency and reliability. A validity check was performed to assess the importance of the Pearson correlation coefficient at a meaningful level ( $\alpha$ ) of 5%. The test used one-sided measures with a  $0.05^\circ$  of significance. The evaluation parameters were 1) if the  $r$  count  $>r$  table declared the instrument valid; and 2) if the  $r$  count  $<r$  table declared the instrument non-valid. Because all instruments in the validity test had  $r$  count meaning ( $\alpha$ ) 5%  $>r$  table with 5% meaning, the instrument used was valid.

**Table 1** Internal consistency, convergent validity, composite reliability and AVE

| Construct              | Indicator | Loadings | Cronbach's alpha | Composite Reliability | AVE   |
|------------------------|-----------|----------|------------------|-----------------------|-------|
| Usability              | U1        | 0.653    | 0.803            | 0.889                 | 0.733 |
|                        | U2        | 0.938    |                  |                       |       |
|                        | U3        | 0.945    |                  |                       |       |
| Technical competencies | T1        | 0.751    | 0.916            | 0.927                 | 0.615 |
|                        | T2        | 0.704    |                  |                       |       |
|                        | T3        | 0.787    |                  |                       |       |
|                        | T4        | 0.668    |                  |                       |       |
|                        | T5        | 0.818    |                  |                       |       |
|                        | T6        | 0.861    |                  |                       |       |
|                        | T7        | 0.779    |                  |                       |       |
|                        | T8        | 0.881    |                  |                       |       |
| Financial assistance   | F1        | 0.863    | 0.726            | 0.817                 | 0.551 |
|                        | F2        | 0.853    |                  |                       |       |
|                        | F3        | 0.792    |                  |                       |       |
|                        | F4        | 0.326    |                  |                       |       |
| Lecturer               | L1        | 0.823    | 0.855            | 0.901                 | 0.694 |
|                        | L2        | 0.792    |                  |                       |       |
|                        | L3        | 0.841    |                  |                       |       |
|                        | L4        | 0.874    |                  |                       |       |
| Successful factors     | S1        | 0.876    | 0.867            | 0.910                 | 0.716 |
|                        | S2        | 0.893    |                  |                       |       |
|                        | S3        | 0.699    |                  |                       |       |
|                        | S4        | 0.799    |                  |                       |       |
|                        | S5        | 0.842    |                  |                       |       |

Source: Authors' own estimates based on survey data

For this analysis, which analyzed the accuracy of the testing instrument, the reliability test used Cronbach’s alpha values. Because the alpha value of the Cronbach was 0.881, the research instrument was either accurate or reliable in qualifying. The validity and reliability tests performed demonstrate the validity are reliability of the research instrument.

### 4.2 Analysis with Smart PLS

Using Smart-PLS method assisted by Smart PLS 3.0 a model of influential design change factors was built in the construction projects. Then, the model’s validity and reliability were evaluated. The validity was checked by convergent and discriminating validity while Cronbach’s alpha and composite reliability was checked for reliability. The rule of thumb for convergent validity is 1) the loading factor >0.7 in which the leasing factor 0.6–0.7 is still appropriate for exploratory work, 2) the loading factor >0.5 and 3) the average derived variance (AVE) >0.5. Table 1 displays smart PLS measurement model for design modifications.

Table 1 displays the load factor values, Cronbach’s alpha values, composite reliability values and AVE values. George and Mallery (2003) reported that Cronbach’s alpha is excellent with more than 0.7 ( $\alpha > 0.9$ ). In the current analysis, that is excellent is more than 0.9. In addition, AVE will be equal to or greater than 0.5 and composite reliability are more than appropriate within the current study range. Moreover, the discriminant validity is shown in Table 2. Using Smart PLS, a structural model was evaluated after evaluation of the measurement model. Direct and indirect effects were analyzed to attain this objective. Consideration of the route coefficient and the value “t” verified the hypothesis. In addition, it investigated R-Squared ( $R^2$ ) and quantitative significance ( $Q^2$ ).

**Table 2** Discriminant validity (HTMT)

|                        | Financial assistance | Lecturer | Successful OL | Technical competencies | Usability |
|------------------------|----------------------|----------|---------------|------------------------|-----------|
| Financial assistance   | 0.743                |          |               |                        |           |
| Lecturer               | 0.210                | 0.833    |               |                        |           |
| Successful OL          | 0.326                | 0.460    | 0.825         |                        |           |
| Technical competencies | −0.006               | 0.061    | −0.122        | 0.784                  |           |
| Usability              | 0.331                | 0.409    | 0.714         | −0.129                 | 0.856     |

**Table 3** Hypothesis testing direct effects

| Hypothesis | Relationship                           | Std Beta | Std Error | t-values | p-values | f <sup>2</sup> | VIF   |
|------------|--|----------|-----------|----------|----------|----------------|-------|
| H1         | Financial Assistance → Successful OL   | 0.086    | 0.076     | 1.134    | 0.027    | 0.015          | 1.132 |
| H2         | Lecturer → Successful OL               | 0.202    | 0.082     | 2.449    | 0.015    | 0.074          | 1.229 |
| H3         | Technical Competencies → Successful OL | -0.057   | 0.094     | 0.612    | 0.541    | 0.007          | 1.034 |
| H4         | Usability → Successful OL              | 0.595    | 0.082     | 7.223    | 0.000    | 0.592          | 1.338 |

Note: We use 95% confidence interval with a bootstrapping of 5,000

### 4.3 Structural Model

We evaluate multivariate skewness of Mardia (multivariate skewness and kurtosis, as indicated by Hair et al. (2017) and Cain et al. (2017)). The findings showed that the data we obtained were not regular multivariate kurtosis of Mardia ( $\beta = 62.566$ ,  $p < 0.01$ ), so we recorded the path coefficients, the standard errors, t-values and p-values for the structural model using a 5,000 sample re-sample bootstrapping procedure following the suggestion on Hair et al. (2019). Hahn and Ang (2017) also criticized that p-value are not a good criterion for evaluating the validity of the hypotheses and proposed using a mix of metrics such as p-values, confidence ratio, and effect sizes. The description of the parameters we have used to test the hypotheses formed in shown in Table 3.

First we tested the effect of the 4 predictors on successful OL, the  $R^2$  was 0.553 which shows that all the 4 predictors explained 55.3% of the variance in successful OL. Financial assistance ( $\beta = 0.086$ ,  $p < 0.05$ ), Lecturer ( $\beta = 0.202$ ,  $p < 0.01$ ), technical competencies ( $\beta = -0.057$ ,  $p > 0.10$ ) and usability ( $\beta = 0.595$ ,  $p < 0.01$ ). Thus H1, H2 and H4 were all positively related to successful OL, thus H1, H2 and H4 were supported but H3 are negatively related to the successful OL and not significant, thus H3 were rejected.

## 5 Conclusion and Recommendation

The aim of this study is to investigate the factor of successful of implementation of online learning during pandemic COVID-19 on higher learning institutions. Only two constructs are accepted from the four hypothesis tested, and the t-value obtained shows that they are statistically important. This research also discussed the validity and reliability of the measures used, and the results indicates strong convergent validity and discriminant validity. The successful factors of implementation of online learning is support by the financial assistance, role of lecturer and usability. The most importance factors of the successful of OL is usability, which is the usability of the

website. This factors is most important to support the successful of the online learning and supported by Yan and Guo (2010).

Besides that, role of lecturer also important to ensure a successful of the online learning. Role of lecturer to ensure student understand what they teach and they will make sure student can adapted what they teach (Moore et al. 2011). Technical assistance with the financial aid from the government during the pandemic of COVID-19 also positive influence a successful factors of online learning. With this aid of assistance from government and also family support help student in the online learning. Thus, it is influence the successful factors of online learning. During pandemic COVID-19, most of us have a financial problem, thus with the financial aid from the government and family help student success in the education. Technical competencies is negatively correlated with successful of online learning. This is because, several student are from the rural area, thus there have a problem in the technical to ensure they can receive the information, lecturer notes or other from the universities and lecturer. This support by Ayub and Iqbal (2011), they find that students were actually satisfied with e-learning mode of teaching. Another studied by Lee et al. (2009); Alsheri et al. (2019) have shown that quality of knowledge is the most significant dimension followed by the navigation of the e-learning system. Hong et al. (2003); and Rafaeli and Sudweeks (1997) reported that students' interest in research was increased by an e-learning program or a website with a harmonious color and context configuration.

The results shows that, all the theories are backed by empirical research and in accordance with previous observations and theoretical context for the factors of successful online learning in higher learning institutions in Malaysia. For the recommendation, ministry of higher education should ensure that student can assess the internet and web where ever they are and ensure this is a the successful factors of online learning among higher education student. Limitation of this study is only using a several factors that influence the successful factor of online learning, there should add some indicator such as financial technology, role of government especially ministry of education and role of parents and family support. Thus the results may be more useful in the future research.

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# Experience is the Best Teacher: Apprenticeship Based Learning in Entrepreneur Development



Muhammad Fahimi Sofian, Dzul kif fi Mukhtar ,  
Muhammad Ikhsan Setiawan, and Haslinda Ramli

**Abstract** In the current study on entrepreneurship education, lecturers, structured seminars, and individual written assignments are used to describe two major entrepreneurship programs and courses. The majority of these latter courses are instructor-led, with little student interaction. From a more contemporary perspective, it is critical to experiment with and learn from one's own experiences in order to educate entrepreneurs. As a result, more innovative approaches to education are gradually emerging, including project-based, action-based, and apprenticeship-based learning. Several institutions have launched entrepreneurial apprenticeship-based learning programs in the last few years, primarily for management students. Due to Malaysia's lack of structure and credit opportunities, entrepreneurial apprenticeships at public universities remain uncommon and thus under-researched. Thus, the contribution's study topic is how program stakeholders can organize apprenticeship-based learning and the effect this has on graduates' readiness to start their own businesses. Thus, the technique used in this study is to conduct a review of the current literature on entrepreneurial learning in order to gain a better understanding of the entrepreneurial apprenticeship-based learning component of the 2u2i program. Second, the case of an entrepreneurial apprenticeship program for graduates near University Malaysia Kelantan, a public university with a strong entrepreneurial cluster, is examined to gain insight into the impact of apprenticeship on entrepreneurship education in general and non-business subjects in particular. For this purpose, a case study was created based on interviews with graduates and mentors. Overall, the results will serve as a model for entrepreneurial education and training in a university setting, which will benefit those interested in developing entrepreneurship education course concepts.

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M. F. Sofian · D. Mukhtar (✉)

Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, 16100 Kota Bharu, Malaysia

e-mail: [dzulkiffi@umk.edu.my](mailto:dzulkiffi@umk.edu.my)

M. I. Setiawan

Narotama University, Surabaya 60177, Indonesia

H. Ramli

MKR Hartamas Sdn Bhd, 50088 Kuala Lumpur, Malaysia

**Keywords** Entrepreneurial apprenticeships based learning · Higher education

## 1 Introduction

Entrepreneurship education began ages ago. The majority of conventional entrepreneurship education institutions and universities are founded on the idea that lectures can help students build entrepreneurial companies. However, different innovative ways and methods are being used to demonstrate that developing an excellent entrepreneur takes substantial entrepreneurial experience. As a result, the institution's primary emphasis in establishing entrepreneurship education is on experiential apprenticeship-based learning. These include project-based, action-based, and apprenticeship-based learning. By and large, this strategy is more effective in preparing graduates to meet future challenges in establishing new businesses that are more compatible with the current environment.

This research study will perform an extensive description and discussion of experiential apprenticeship-based learning to contribute to entrepreneurship education. In this context, universities and industry collaborate to provide students with opportunities to obtain real-world experience and entrepreneurship skills by incorporating an apprenticeship-based teaching strategy into program curriculum and pedagogy. The article's research question is how stakeholders in the program might arrange apprenticeship-based learning and its influence on graduates' preparation for starting their businesses.

To begin, the newest research on entrepreneurship education is given, focusing on programs that utilize more current methodologies such as apprenticeship-based learning and experience-based learning. Additionally, apprenticeship education is defined through the development of the curriculum. Second, a case study of the 2u2i entrepreneurship program for students in the vicinity of the Public Malaysian Higher University in Kelantan is explored to understand better the industry's impact on entrepreneurship education in general. Case studies are prepared for this purpose based on interviews with graduates and facilitators. Interviews are done following established interviewing protocols and guidelines comprehensive insights into the effects that training companies can have on the preparation of learners for later professional practice and/or self-employment.

The findings of this study can be used to develop a comprehensive picture of the requirements and framework for mentors and graduates when implementing apprenticeships in higher institutions in Malaysia for entrepreneurial apprenticeship-based learning. In general, the findings of this study will serve as a critical indicator of guidelines and best practices for developing an apprenticeship-based learning framework. Additionally, it might serve as a starting point for universities in creating the concept and pedagogy of entrepreneurship education.

## 2 Underlying Concepts

The research on entrepreneurship education is advancing at a breakneck pace. To demonstrate the importance of effective learning, experts demonstrate two distinct types of entrepreneurship courses: (1) entrepreneurial training programs; and (2) entrepreneurial programs comprised of lectures, formal seminars, and essay assignments (Cui et al. 2021). Typically, traditional entrepreneurship programs allow students to study and become acquainted with the subject of entrepreneurship. Generally, the majority of these programs are described as teacher-centered, implying a low level of student engagement. The Beginning Services Centre at the University typically offers such programs as an adjunct to the regular curriculum, which means that students who enroll in these programs do not earn credit toward future commitment. However, development is not a linear process and is far too complex to be taught solely through textbook material (Wright et al. 2017).

However, some contemporary researchers argue that efficacy in entrepreneurship education can be achieved only through practice, experimentation, and the acquisition of knowledge and experience through mentorship from someone who has successfully navigated the entrepreneurial process (Hägg and Politis 2017). This type of education will help students develop a greater sense of motivation and entrepreneurial behavior, which is critical for the growth of entrepreneurship (Zainuddin et al. 2019). Regrettably, motivation cannot be boosted solely through memorization of textbook topics. On the other hand, if students can engage in legitimate entrepreneurial activities and encounter real-world business transactions, obstacles, and rewards, this learning objective is more likely to be met. To encourage and promote entrepreneurship education, a holistically constructive environment should be planned and constructed, including the participation of inspirational prominent figures and successful business start-up individuals, as well as the provision of space for graduates to begin venture creation subject to certain university conditions. In general, when developing an excellent entrepreneurship education program, it is critical to emphasize components such as learning from real-world transactions, real customers, and genuine business difficulties (Kassean et al. 2015). This will be demonstrated as a more innovative and creative educational system is gradually implemented in the teaching and development of entrepreneurial education, with an emphasis on experiential learning and apprenticeship-based learning (Secundo et al. 2017).

To ensure that students grasp the previously discussed concepts and systems, the success of an active and interactive method in a learning system requires a student-centered experience (Bell and Bell 2016). Additionally, experiential learning can facilitate students' participation in an open-ended creative process (Bell and Bell 2016). As a result, program objectives cannot be specified when developing an experiential learning program. The industry mentor can supervise and direct only a few aspects of the apprenticeship process, such as the framework for the apprenticeship process and the implementation of the project or assignment.

From another angle, apprenticeship-based education incorporates real-world experiences. This model incorporates entrepreneurial expertise gained in the real world while enrolled in a guided university. Graduates can develop a viable career or business in this supportive environment through the application of their acquired knowledge and positive outcomes (Warhuus et al. 2017; Mukhtar et al. 2021). Apprenticeship-based education in the workplace also incorporates experiential learning and business initiatives. During an entrepreneurial apprenticeship, there was a discernible positive effect on students' entrepreneurial growth. This effect is, however, negligible for students who do not have a business background.

To strengthen entrepreneurial education, policymakers in northern European countries have restructured their educational systems to incorporate apprenticeships as experiential learning opportunities. Fundamentally, graduates of this institute collaborate to conduct business using real money and real customers (Gaddam et al. 2016). Universities throughout North-Western Europe follow a similar strategy. At Newcastle Business School, for example, a work-based learning method promotes the concept of "learning by doing" by allowing graduates to establish real businesses (Lucci et al. 2018). The University of Malaysia Kelantan in Malaysia has developed an apprenticeship-based entrepreneurship program in which students work alongside industry mentors. As a result, students become aware of business opportunities and prepare for future growth. Industrial apprenticeships are also established through a similar process in universities.

In Malaysia, the Ministry of Higher Education rebranded the apprenticeship as the 2u2i program as formal education pedagogy. The innovative component is the opportunity for industry practitioners to collaborate with universities on curriculum development, ensuring that the program is more aligned with the requirements of the entrepreneurial environment (Sofian and Mukhtar 2021). Additionally, it is anticipated that exposure to real-world business environments through the 2u2i program will help students develop confidence and real-world business skills. Students enrolled in such a program benefit from an active and constructive learning environment that enhances their graduation profile, fosters creativity and professionalism, and helps students develop communication skills. Students gain paid, real-world experience and instruction from cooperating employers through experiential education (learn and earn) (Sofian and Mukhtar 2021). Following current 2u2i recommendations, the current study technique incorporates numerous components, including work-integrated teaching, work-based learning, and apprenticeship-based learning. The primary characteristic of 2u2i is that graduates gain meaningful "skill-building" experience through the implementation of a rigorous university-industry curriculum.

Currently, five public academic institutions in Malaysia, namely Universiti Malaysia Kelantan, Universiti Putra Malaysia, Universiti Teknologi Malaysia, Universiti Sultan Zainal Abidin, and Universiti Kebangsaan Malaysia, offer a variety of bachelor degree programs utilizing the 2u2i pedagogy. According to the Ministry of Education, the primary impediment to implementing the program is convincing industry to collaborate with colleges to allow for longer graduate placements. Another conundrum is whether industry has the time to consult with academics

about specific student placement details, given the pressures and expectations associated with managing their businesses. Additionally, the public is concerned with students acquiring sufficient academic knowledge and comprehending the decreased time spent on campus-based instruction. According to Ministries, the strength of the 2u2i program stems from collaboration between industry leaders and educational institutions in developing curricula taught in and out of the classroom. Additionally, this project evaluates industries in collaboration with academia, assisting in the development of a more industry-driven assessment framework.

### 3 Methodology

To help clarify the publication's research question, which is how program stakeholders might construct apprenticeship-based learning and its effect on preparedness for new venture formation, a case study on entrepreneurship education in apprenticeship was constructed. The 2u2i program at Universiti Malaysia Kelantan is an apprenticeship-based entrepreneurial education that involves graduates in real-world projects. It enables students at Universiti Malaysia Kelantan to interact with the business community and apply their academic knowledge. UMK is a cluster of Public Universities of Entrepreneurship located in Kelantan, Peninsula Malaysia's north-eastern region.

To examine the aforementioned research question from the mentors' and graduates' perspectives. Four interviews were conducted: two with mentors of an orientation learning experience for graduates interested in participating in the entrepreneurial 2u2i program and one with the researcher. Two with graduates who began the program and then pursued entrepreneurial endeavors. The following sections will delve deeper into the interview criteria in order to properly document the qualitative research process (Galletta and Cross 2013). The author employed a variety of principles to convey the perspectives of both the mentor and the graduates.

The following guidelines apply when interviewing mentors in programs based on apprenticeships: (1) Participants' background and pertinent knowledge; (2) Justification for establishing an apprenticeship program at Malaysia's Universiti Malaysia Kelantan. (3) Suitability for implementing entrepreneurial apprenticeship-based learning from a pedagogical standpoint (4) program objectives and curriculum design, including the development of students' expected skills; (5) assessment of the effect of skills acquired during the apprenticeship program's implementation on students' participation in new venture creation; and (6) overall potential for the program entrepreneurship apprenticeships in higher education.

By contrast, when developing an interview technique for two students who completed the program and pursued entrepreneurial endeavors, the following factors were considered: (1) Students' motivation for pursuing an entrepreneurial apprenticeship program; (2) An assessment of skill acquisition or deficiency during the apprenticeship; (3) New content or context that was not adequately covered during classroom instruction; (4) The most significant benefit of industry programs and

apprenticeships; and (5) An assessment of the extent to which the apprenticeship can prepare them.

The researchers analyzed qualitative data from the entirety of each interview's transcripts. The following section summarizes and compares the findings from the discussion—first from the instructor's perspective, and then from the students' perspective. The final section discusses the possibility of apprenticeship having an impact on entrepreneurship education.

## 4 Findings

To ascertain how the university may collaborate with industry to create apprenticeship learning and influence graduates' readiness for real-world experience education through the deployment of modules and actual events throughout the apprenticeship. The graduate will engage in entrepreneurial activity following the apprenticeship program's acquisition of knowledge, experience, skills, and entrepreneurial transactions. Thus, these studies examine the mentors' and graduates' perspectives on apprenticeship-based entrepreneurship education.

### 4.1 *Mentor's Perspective*

The findings suggest that, from the mentor's perspective, a particular amount of motivation is critical when teaching entrepreneurship in the context of an apprenticeship. Thus, the mentors interviewed were directly involved in the apprenticeship program, which had resulted in the establishment of a firm with the graduates. The apprenticeship program has served as a motivator for mentors because it allows them to witness students develop into successful entrepreneurs, critical for its continued operation. This passion will be transmitted to the apprentice pupils by the mentor. Mentor participation appears to be essential in evaluating partnership prospects between students, industry, and universities.

Along with a positive relationship with the institution, industry expertise is critical and must be provided to graduates as part of their education if not acquired during classroom studies. I want to note briefly here as well that this apprenticeship is only open to entrepreneurial grads. By the time graduates establish their businesses, their knowledge and scope of work will be more interdisciplinary—as there are numerous other tasks involved in establishing a business, such as financial management, information technology systems, human resource management, and specialized areas within their company. Given the numerous obstacles that apprentice graduates confront, it is impossible to grasp all of these facets when completing an entrepreneurial apprenticeship. As a result, graduates must participate in apprenticeships to bring additional expertise from their previous schooling or informal learning or be willing to gain this information through participation in new enterprise creation.

Students who have completed an entrepreneurial apprenticeship during their studies bring significant advantages to their final entrepreneurial activity, including a high level of practical experience, a strong network within the respective industry, self-employed activities, and relevant teamwork and management experience. In general, student start-ups provide an opportunity for experimentation within the safe confines of the university, without regard for the outcome. Additionally, interdisciplinary collaboration is critical when students from many disciplines of study collaborate as part of an entrepreneurial apprenticeship graduate program. This, more than any interdisciplinary project course, broadens their view beyond theoretical limits.

## ***4.2 Graduate's Perspective***

The findings indicate that personal drive is critical for success in an entrepreneurial apprenticeship regarding the student perspective. As a result, both students interviewed were recruited by a mentor and were already enrolled in the apprenticeship. This is where they learned how to run a business and developed their basic business management skills. Additionally, they valued the mentor's role in guiding them through the process of creating their own business. When they operated the firm alone, they discovered that even with their experience and knowledge, they needed a clear separation of roles to move into new creations. They are unable to manage the business on their own. The firm should have the following functions: a human resources manager who keeps the employees together, a finance manager who oversees the funds, and an information technology manager responsible for the digitalization medium.

From the students' viewpoint, the most significant benefit of the apprenticeship is that they can develop new business relationships and engage with potential future industries. Apprenticeships also train individuals to start their businesses. Thus, insights learned during the apprenticeship can be applied to the establishment of their firms. Both students interviewed express a strong desire to pursue entrepreneurial endeavors. One of them has already earned expertise in a related business and now recognizes the benefits of being an entrepreneur with flexible work hours and decision-making authority.

On the other side, the capacity to research and run a business to acquire consumers is viewed as a barrier. Additionally, due to the limits imposed by studying or working as an apprentice while having their own business, it becomes a source of stress and pressure for graduates to divide their time between business and learning. Additionally, students must complete assignments, share, and fill out daily logbooks, which are considered a burden to students during the apprenticeship period. Graduates must work in the industry for approximately 8 to 10 h per day and must complete university assignments in their leisure time.



## 5 Conclusion

The purpose of this paper was to ascertain how program stakeholders might structure apprenticeship-based learning and the effect on graduates' readiness to start their own businesses. The preceding section's findings from a case study—entrepreneurial apprenticeship-based learning for graduates at Universiti Malaysia Kelantan, a Malaysian entrepreneurial university—revealed some fascinating observations. Apprenticeships may be a viable method of entrepreneurship education. Simultaneously, this strategy necessitates a number of framework conditions and imposes significant responsibilities on mentors and graduates.

As the study's findings indicate, an entrepreneurial apprenticeship's success is largely dependent on the motivation provided by mentors and graduates. In this context, mentors, for example, may pave the way for industrial collaboration and structural assistance at the institution. Additionally, the industry should seek a qualified mentor who possesses extensive expertise, skills, and professional services necessary to help graduates establish their businesses. It may be prudent to establish an advisory board comprised of industry representatives to teach graduates to understand the perspectives of customers and stakeholders. Graduates should acquire industry knowledge and management skills during the apprenticeship phase. If the industry does not guide them through their apprenticeship, they should be willing to acquire expertise on their own. Given the breadth of the apprenticeship's activities, graduates must also be prepared to distribute and assign various jobs within their own business.

To summarize, the findings established a model for entrepreneurial education and learning in a university setting, as well as the necessary framework conditions, which can be beneficial to those involved in the development of entrepreneurship education course concepts. By and large, the benefits of such an engagement outweigh the requirements. Entrepreneurial apprenticeships are a more developed version of the excellence program method. Although the assignments are based on real-world business transactions, the institution safeguards graduates. Along with academics, students gain valuable practical experience, build a strong network within their chosen field of business, and gain a better understanding of self-employment, managerial expertise, and critical teamwork experience. They will graduate as seasoned entrepreneurs with experience in customer and business management who have expanded their horizons. Additionally, the students will have developed new business relationships and communicated with potential customers. Some students may now feel prepared to pursue an entrepreneurial career, even if the effect on later professional life or self-employment cannot be determined conclusively because the students interviewed have not completed their education.

The case study's findings suggest some implications for Malaysian universities' future entrepreneurship teaching practices. To begin, it would be prudent to assist and enable the establishment of such apprenticeships expeditiously through financial support, including the establishment of a board of advisors to ensure continuous quality improvement (CQI). Second, students should be encouraged to participate

in apprenticeships as a means of education. Students who gain practical experience in addition to their academic studies are frequently more prepared to pursue careers as professional entrepreneurs. Colleges must establish acceptable framework conditions in this regard by incorporating such practical activities alongside pertinent assignments that correspond to graduate learning time in industry and university. This will help ensure that suitable activities are no longer viewed as an additional burden on graduates, but as an excellent opportunity for them to put their acquired skills to work and gain real entrepreneurial experience within the safe confines of a university.

The study has a number of shortcomings, which are discussed below. To begin, the current work is based on a case study involving four interviews. To corroborate the present study's findings, a comparison to the effects of apprenticeship on subsequent entrepreneurship at other colleges in other nations would be prudent—other nations 'due to the relatively few apprenticeships focusing on entrepreneurial education in Malaysian university hands. Second, the interviews revealed that the children interviewed possessed an entrepreneurial spirit from the start. This is most likely because the curriculum is restricted to entrepreneurs with a high level of personal motivation. Thus, in terms of future research on training firms, it would be interesting to conduct a larger study with students from a variety of disciplines and with varying levels of prior knowledge in entrepreneurship—as well as to gain a more comprehensive understanding of the effects that training firms can have on learners' preparation for later professional entrepreneurship.




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# Management Practice in Stimulating Safety Culture: A Study at Malaysian Education Sector



Nor Kamilah Makhtar , Ahmad Rasdan Ismail ,  
Balakrishnan Parasuraman, Mohd Nazri Zakaria,  
Jaswardi Anwar Md Yaacob , and Zikri Awang

**Abstract** Understanding safety culture in an organization can make a significant contribution to changing employee attitudes and behaviors in relation to workplace health and safety. Many studies have shown the importance of element that leads to broad behaviors, or culture actions, that are considered essential to the development of a positive safety culture in a workplace mostly in high-hazard industries, but less is done in the education sector. The aim of this research paper is to identify areas of improvement that can be addressed by managerial decisions and also policy activities in the Malaysian education sector, in creating academic organizations as a safe workplace for teachers and students. Therefore, this study was to analyze the relationship between factors that contribute to safety culture, analyzing through the Importance-Performance Matrix Analysis (IPMA) what the aspects to improve by the management to increase a safe working condition in the education sector, using PLS-SEM. Data were collected from 447 academic staff from Vocational Colleges using a cross-sectional survey by using a multi-stage sampling. Several components such as safety training, safety knowledge, PPE, safety communication, safety rule and the influence of peers significantly contribute to the positive safety culture in vocational training as the managerial need to keep up the great effort in bringing these element in this sector. Malaysian Ministry of Education should place OSH Education as a separate course in curriculums of vocational and technical schools at

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N. K. Makhtar (✉) · Z. Awang

Department of Research and Innovation Planning, Teacher Education Institute Kota Bharu Campus, Kota Bharu, Kelantan, Malaysia

A. R. Ismail

Faculty of Creative Technology and Heritage, Universiti Malaysia Kelantan, Kota Bharu, Malaysia

Centre for Management of Environment, Occupational Safety and Health (CMeOSH), Universiti Malaysia Kelantan, 16300 Bachok, Kelantan, Malaysia

B. Parasuraman · M. N. Zakaria

Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Kota Bharu, Malaysia

J. A. M. Yaacob

Department of Science Technology Engineering and Mathematics, Teacher Education Institute Kota Bharu Campus, Kota Bharu, Kelantan, Malaysia

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all levels. Furthermore, legal regulations must be included in OSH Education so that all staffs and students grasp the legal status and importance of OSH.

**Keywords** Education sector · Importance-Performance Matrix Analysis (IPMA) · Malaysia · Safety culture

## 1 Introduction

School as one of educational sector besides technical training schools, technical training center, and others is a workplace for teachers, students, academic staff and support staff, is an organization that is also exposed to various safety risks. Elements on occupational safety and health need to be exposed to teachers and learned by students as a preparation for the students for their future occupation and self-regulated towards any hazard and risk that occurred during their learning time at schools. According to the List of First Table in Occupational Safety and Health Act (OSHA) 1994, school is one of the educational organizations had been stated under the Public Sector and Statutory Bodies. Teachers have a huge responsibility to promote and maintaining the safety of students while imparting practical skills and knowledge in a specific area to students by the use of tools, machines, and materials in the workshop (Makhtar et al. 2019). The previous study has confirmed that there is a strong relationship between the educational level on dangerous substances and subjects, to the degree of education (Tureková and Bagalová 2018). For example, it is found that the level of education on the simple knowledge on first aid not just among primary and secondary school pupils but also among primary school teachers. Thus, it is very important to the teachers to themselves and the students from any possible risks and hazards, indirectly ensure their safety in school as a workplace where educational activities are performed (Hamzah et al. 2018; Ismail et al. 2017). Data showed the percentage of 0.96% number of accidents in 2015 that occurred in the Public Services and Statutory Bodies sector and increasing to 3% in 2016. The percentage then slowly decreased to 1.45% at the end of October 2017, in Malaysia according to the report by the National Institute of Occupational Safety and Health Malaysia (Makhtar et al. 2019). Furthermore, there were 47 cases of accidents involving injuries and even deaths that occurred in the school area from the year 2015 till 2017 based on the press reports (Makhtar et al. 2018).

Nowadays, the safety issue becoming particularly necessary as society supports technical education due to the increasing need for skillful employees in various fields of employment. Academic staff at vocational school plays an important role in practicing and delivering safety awareness and practices among students since this foundation may affect their working experiences for many years to come. Academic staff must play a good role in showing a good safety culture at a workplace. Since the students have lacked a systematic way to approach hazard control, it is found that vocational education pupils had limited knowledge of how to prevent safety and health risks at work (Hejduk and Tomczyk 2015; Shendell et al. 2018; Yurtçu 2019).

To ensure that a vocational college as one of technical based schools in Malaysia, is a safe institution for the academic staff to work at and for the students to gain knowledge and skills, a study must be conducted to identify how far the academic staff demonstrate safety culture during their teaching and learning process in the workshop. Furthermore, a study on what actions and elements need to be focused on upon managerial in the education sector to improve the safe environment at schools as a workplace.

## 2 Safety Culture and Its Contributing Factors

The culture of an organization is a reflection of the way in which the organization operates. To promote a positive health and safety culture, everyone in the organization needs to understand what is meant by safety and health culture. Safety culture can be defined as an organization encompasses individual and group values, the attitudes, perceptions, competencies of the entire workforce, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization's health and safety management (Choudhry et al. 2007; Cooper 2000; Crutchfield and Roughton 2014; Yorio et al. 2019).

The culture of an organization contributes greatly to its health and safety performance. Evidence indicates that successful organizations have developed positive cultures that promote good health and safety practices. Having a good health and safety management system can go some way to set the scene for developing a good culture, but it goes much deeper than that. A positive health and safety culture embodies a combination of factors. Perceptions of safety culture are measured because it's will reflect the organizational activities and policies, predict safety-related behaviors, and also on the reporting of safety incidents (Tear et al. 2020).

The Reciprocal Safety Culture Model by Cooper (Cooper 2000) will be formulated with the purpose of this research based on previous studies. In this model, the safety culture factors in the context of organizational were measured in three important dimensions which were psychological, behavioural, and situational factors. Furthermore, the model itself promotes self-regulatory processes that are consistent with the definition of safety culture.

Psychological and behavioural measurement is generally collected from the individual perspective and then requires some amalgam of the measurement to gauge the collective culture (Flannery 2001). Elements in psychological aspect in this study were the safety attitude, the influence of peers, and safety knowledge. The behaviour aspect will be measured by the factors of management commitment, safety communication and, reward and recognition (Chenhall 2010; Frazier 2011; Vinodkumar and Bhasi 2010). Finally, the dimension of situational will be measured by safety training, accident and incident reporting, safety rules and personnel protective equipment (PPE) (Vinodkumar and Bhasi 2010; Idrus et al. 2004). All these elements

were found to have a positive effect in contributing positive safety culture in an organisation.

### 3 Importance-Performance Matrix Analysis (IPMA)

Martilla and James published this graphical tool (Martilla and James 1977) used to identify the most crucial attributes concerning their need for managerial action and define areas of improvements in developing a successful marketing programme to achieve an advantage over competitors (Ramayah et al. 2014). The analysis called as Importance-Performance Matrix Analysis (IPMA) is a method of evaluating the quality and the approach to help in managerial action (Rašovská et al. 2021). Furthermore, this simple graphical tool can identify the most crucial elements concerning their need for managerial action and define areas of improvement (Yeap et al. 2016). Hence, it is necessary to perform IPMA to avoid any ambiguity concerning managerial decisions and for managerial purposes (Wook et al. 2019).

The assessment provides in conventional IPA introduced by Martilla and James (1977) provides the average value of the importance and performance of different element attributes calculated in a defined coordinate system on a two-dimensional graph. The horizontal axis represents performance, and the vertical axis represents an importance in this approach. The attributes in the IPA quadrants are represented on a matrix where each attribute falls into one of four quadrants where every attribute shows up according to its mean rating on importance-performance scales. For example, the elements that fall into the “concentrate here” quadrant are of the utmost interest to the evaluators, as they represent areas of improvement that need to be considered more.

Abalo et al. (2007) come out with interesting alternative partitions of IPA which is different from Martilla-James partitions. The alternative partitions combine the quadrants and diagonal-based schemes, enlarging the top left quadrant of the original Martilla-James partition. Furthermore, these new quadrants will occupy the whole of the zone above the diagonal on which importance and performance are equal.

IPMA has been employed by researchers in many fields and has proven to be a valuable management tool (Shafaei and Razak 2015; Hassan et al. 2020a; Abulhakim and Adeleke 2018; Ong et al. 2019; Rahi et al. 2019), which allow directors and managers to improve their management strategies since it points out the main factors that require an immediate response. Thus, this research try to use this tool in the field study of safety culture to get a wide knowledge providing what aspects must be improved for a better safety culture in the education sector.

By assessing IPMA, the impact of exogenous latent variables (safety attitude, safety training, safety rule, safety communication, influence of peers, reward and recognition, safety knowledge, accident and incident reporting, management commitment, and PPE) with a relatively high importance and relatively low performance on an endogenous latent variable (i.e. safety culture) would be identified (Ringle et al. 2018). Furthermore, the IPMA results will help managerial actions to

focus on and improve the recognized areas within the quadrants of high importance but low performance (Hair et al. 2014) especially in the education sector.

## 4 Method

### 4.1 Population and Sampling Method

The population of this research comprised academic staff of Vocational College (VC) in 4 main parts of Malaysia which are North Malaysia, South Malaysia, West Malaysia, and also East Malaysia. The researcher used the multi-stage sampling method to obtain the samples. In this research, the researchers select the respondents that fit the criteria of teaching engineering courses at VC. The respondents consist of 497 academic staff in VC engineering courses which involved in teaching engineering courses.

GPower software is used to measure the sample size of the respondents by calculating the minimum sample size required for this study. The framework of the model in this study had 10 predictors. With the setting of the effect size was set as small, power needed as 0.95, finally the size of sample needed was 172. Finally for the sample size for this study, thus we decided to collect data that was slightly larger than the required sample size measured.

### 4.2 Measures

Measures for the study constructs were adapted and modified from previous studies with strong reliability coefficients. The items of safety attitude, safety rule, and PPE's construct were measured by Idrus et al. (2004), while the items for construct the influence of peers were measured based on (Frazier 2011) which contains ten items with Cronbach's alpha reported was 0.84. For the safety knowledge, safety training, and management commitment, the constructs were measured using items developed by Vinodkumar and Bhasi (2010) and lastly for safety communication and, accident and incident reporting, this study used the items developed by Abdullah (2010) with the reported Cronbach's alpha reported was 0.88 and 0.764 each. Likert scale with 5-point was utilized accordingly for all the measures with a rating scale of strongly disagree to strongly agree.



### **4.3 Data Collection**

This cross-sectional research by distributing the questionnaire survey face-to-face and also mailed, were used to collect data from the respondents. The survey was conducted at 62 vocational colleges in Malaysia by using the multi-stage sampling technique 447 questionnaires were distributed and 397 were returned and accounted for a response rate of 89%. With 6 of the questionnaires were not fully answered and some were taken out due to outliers, 380 were accepted for further analysis.

### **4.4 Data Analysis**

Statistical Package for the Social Sciences version 24 is used to analyze the descriptive information of respondents based on demographic profile. The validity, reliability, hypothesis testing and, importance-performance map analysis (IPMA) of the study was assessed by using Partial least squares-structural equation modeling (PLS-SEM).

### **4.5 Respondents' Profile**

SPSS 24 software was used to obtain the frequencies of the respondents' demographic profile. Majorities of the respondents are more than 46 years old (33.7%), are male (68.7%), are equipped with undergraduate degrees (69.5%), and with working experience of more than 15 years in VC (45.0%).

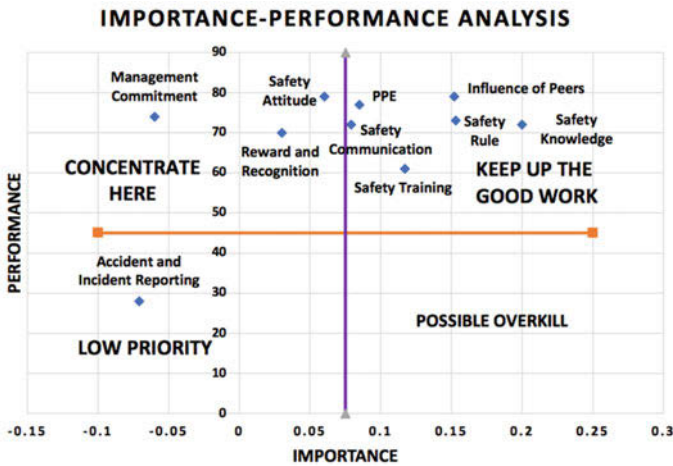
### **4.6 Importance-Performance Matrix Analysis (IPMA)**

Through IPMA analysis, the target construct with low performance but high importance can be determined to increase the organization's performance (Xhafaj et al. 2021). The IPMA results help decision-makers and also the organization's management prioritize areas for managerial actions (Hee and Lin 2021), as in this research, it shows an important evaluation for studies with a focus on safety culture. Due to Tan et al. (2019), the total effects of the estimated relationships in the structural model for explaining the target construct can be used to determine the importance scores in this analysis. While the performance can be computed by readjustment the scores to range from 0 to 100 as for the lowest performance to the highest performance each (Hair et al. 2014). IPMA results can be seen in Table 1 below.

Finally, from the data in Table 1, a priority map was plotted from the scores values of the index and total effects as shown in Fig. 1. Figure 1 demonstrated

**Table 1** Total effect and index value

| Latent variable                 | Total effect of the latent variable safety culture (Importance) | Index values (Performance) |
|---------------------------------|---|----------------------------|
| Safety attitude                 | 0.06  | 79                         |
| Influence of peers              | 0.15  | 79                         |
| Management commitment           | -0.06   | 74                         |
| Safety communication            | 0.08  | 72                         |
| Reward and recognition          | 0.03  | 70                         |
| Safety rule                     | 0.15  | 73                         |
| PPE                             | 0.09  | 77                         |
| Safety training                 | 0.12  | 61                         |
| Accident and incident reporting | -0.07   | 28                         |
| Safety knowledge                | 0.20  | 72                         |



**Fig. 1** IPMA (Priority Map) for safety culture in education sector

6 very important factors for the managerial actions in determining a safety culture among the staff regarding the higher values of importance compared to the rest of the variables. The constructs were safety knowledge, safety communication, PPE, safety rule, the influence of peers, and safety training that also within high performance construct among all. Hence the organization’s management needs to maintain all these elements in the management of OSH in the education sector to ensure a safe work environment.

Though variables such as management commitment, safety attitude, and, reward and recognition relatively scored high in performance, it is low in affecting safety culture among the staff since the value of the importance is quite low. However,

management in the technical education sector needs to pay more attention to all these constructs as it will improve the safe environment in schools. The continued commitment from the management to safety and health will enhance the attitude towards safety among employees. To value the involvement of employees to work safely, management is recommended to emphasize the element of respect for all employees. This is an important area that needs to be focused on and concentrated by the organizations' management, thus will bring a great impact in improving safe environment in the education sector.

Through the priority map in Fig. 1, we could say that the construct of accident and incident reporting has a low performance and lower importance variable in the prediction of safety culture. Hence, this element requires less priority and the organization's management should not focus much on this variable in the case of the education sector. This variable is mostly categorized as an important element in a high-risk industrial sector as many previous studies have found that, the construct of reporting accidents and incidents plays an important factor in shaping a positive safety culture in the workplace.

## 5 Discussion

According to the findings of IPMA, high performance and high importance factors as safety training, safety rule, safety communication, safety knowledge, PPE and the influence of peers appears in "keep up the good work" quadrant, towards the safety culture concern. Managerial actions should emphasize safety culture concerns in these aspect. The educational ministry of Malaysia should prioritize in these elements in order to keep vocational organizations as a safe workplace for the academic staff and also students. Managerial needs to ensure that ongoing safety training is provided to teachers in order to ensure that all staff have an adequate understanding on safety knowledge. This situation has been illustrated in previous studies that have found that accidents that occur in laboratories and workshops among teachers and students in vocational and technical high schools, are due to a low of knowledge related to occupational safety (Yurtçu 2019). All academic staff needs to have a sufficient knowledge about the types of risks and hazards occurred in laboratories and workshops while doing teaching and learning process. Furthermore they need to know how to control the specific risks associated with the activities there, so that the risks will be as low as possible and does not pose a danger to the staff and students (Laberge et al. 2017).

Despite the importance of education to increase the knowledge, managerial also need to focus on the training of the use of PPE and do monitoring for the optimal use of PPE among teachers and students during the instructional process. An understanding of appropriate use of PPE to reduce the risk of occupational injuries and accidents of Barratt et al. (2020), even they are still at risk for injury even when they used the right type of PPE (Barratt et al. 2020; Rubenstein et al. 2014). Next, extended knowledge on PPE selection, fit, and how the use of PPE, need to be administered both while in training at vocational training schools on or can be extended during

off school to get very well structured learning experiences on the PPE (Rubenstein et al. 2014; Feszterová 2015; Hakim and Okda 2016). Teachers face some pressure due to the limited time along the instructional process, thus providing little adequate time of safety instruction to allow all students to feel really comfortable while using PPE over the instructional time (Langley et al. 2018). Based on these, training must be provided to teachers for them to continue with the educational practices of using PPE along their teaching and learning process at vocational training.

Besides, the managerial in vocational training could use the findings of this research to strategize their management plan regarding to the accident reporting and investigation. Based on the low value in performance and the importance of the element of accident and incident reporting, shows the need for a quick action by the management to come out with a proper accident and incident reporting. As stated from the IPMA analysis, even this element need minimal focus by the management, however by having a good system of accident and incident reporting, will reflect the need on the training of injury prevention and the interventions provided can decrease the number of injuries reported, thus help decrease in medical expenditure and finally gain academic performance among students (Shendell et al. 2018). Teachers need to report every single accident and incident caused by injury from machine or equipment, which are the most common types in terms of the type of the accident in vocational and technical high schools (Yurtçu 2019).

Furthermore, more concentration on the commitment from the management to create safe workplace environment among all staff in vocational training institution. Safety must be a key-value in an organization and it is the responsibility of management to always strive to improve it in the workplace (Makhtar et al. 2019; Hassan et al. 2020b). Providing continuous professionalism development courses on safety training, the used of PPE, enhancing safety related programmed and enhanced the commitment towards safety rule are some further action need to be focused on by the managerial board (Langley et al. 2018; Shafarin et al. 2021). Besides, the management needs to re-evaluate their governance practices related to safety so that the commitment from the management can be felt by the teaching staff which in turn enhances the safety culture of the teaching staff (Makhtar et al. 2019; Hamzah et al. 2018). The management of the educational organization needs to focus on the developing and implementing safety policy in every schools to provide guidelines that can be implemented by all staff in order to reduce workplace hazards, protect and promote safety and health to all staffs. This action will deeply shows the commitment from the management on the safety and health issues at education sectors.

Based on findings revealed in the study, there are some recommendations for all stakeholders in Ministry of Education in Malaysia and also OSH field organization. There is still a huge gap that needs to be filled in OSH education in vocational and technical high schools. Teacher training conducted by the Ministry of Education should place OSH Education as one of the courses to be learned and trained by future teachers to provide knowledge related to safety risks that may occur in schools and how the teachers can manage those safety risks (Tureková and Bagalová 2018). Malaysian Ministry of Education should place OSH Education as a separate course in curriculums of vocational and technical schools at all levels. Furthermore, legal

regulations must be included in OSH Education so that all teachers and students grasp the legal status and importance of OSH.

## 6 Limitations

There are some limitations to this study. First, our results are based on a Vocational College so it is not necessarily generalizable to other types of schools under the education sector in Malaysia with different study contexts. Next, we were only concerned with the academic staff to involve in teaching engineering courses' perceptions on safety culture. It will be more holistic with the involvement of different groups of employees at education sectors such as administrative staff, all of the academic staff, and also students may result in different improvement priorities which can be uncovered using IPMA.

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# Enhancing Graduate Student Entrepreneurial Intention: A Designed Workshop Based on Exploratory Factor Analysis



Takumi Ohashi , Haruna Kusu, Mai Inoue, Hikaru Tsukagoshi, Ryuta Takeda, and Miki Saijo 

**Abstract** The aim of this study is to contribute theoretically and empirically to entrepreneurship education to enhance entrepreneurial intention (EI) among graduate students through a questionnaire on our designed educational workshop. Using theories of intrinsic motivation and the investment model, we built an extended causal model of EI based on the global entrepreneurship monitor. The survey was given to 189 graduate students from 25 universities in Japan, and 10 new factors associated with EI were extracted by exploratory factor analysis. With these factors in mind, we designed a business plan competition as part of an entrepreneurial workshop for graduate students and ran it for three academic years to evaluate its impact on changes in students' EI. Finally, we made suggestions for improving entrepreneurial education in universities.

**Keywords** Entrepreneurial intention · Entrepreneurial education · Graduate Student · Exploratory factor analysis · Workshop · Business plan competition

## 1 Introduction

Entrepreneurship is a critical part of economic development, as it has important economic functions including employment creation, productivity growth, and producing and commercializing high-quality innovations (Praag and Versloot 2007). University plays a significant role in promoting entrepreneurial activities by providing learning opportunities and heterogeneity in thinking and background to not only potential entrepreneurs but also students in a variety of disciplines (Audretsch 2017), leading to transforming new idea/technology seeds in university into a market-ready product/service. On the other hand, although many scholars agree that there is a link between an entrepreneurship education program and intention to start a

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T. Ohashi (✉) · M. Saijo  
Tokyo Institute of Technology, 2-12-1 Ookayama, Meguro-ku, Tokyo 152-8550, Japan  
e-mail: [ohashi.t.af@m.titech.ac.jp](mailto:ohashi.t.af@m.titech.ac.jp)

H. Kusu · M. Inoue · H. Tsukagoshi · R. Takeda  
Leave a Nest Co. Ltd., 1-4 Shimomiyabi-cho, Shinjuku-ku, Tokyo 162-0822, Japan



business (Çera and Çera 2020), opinions diverge on the effects of such programs on entrepreneurial outcomes (Oosterbeek et al. 2010). Brüne and Lutz (2020) systematically reviewed 21 quantitative and qualitative articles on such effects, and found that while some studies explicitly stated a positive effect of entrepreneurship programs on entrepreneurial intention (EI) (Sánchez 2013; Athayde 2009), others stated that there is no direct positive effect (Paço and Palinhas 2011; Marques et al. 2012; Thompson and Kwong 2016) or even a negative effect (Huber et al. 2014). They also noted that the impact of entrepreneurship education is age- and gender-sensitive and is influenced by the program's structure/design (Brüne and Lutz 2020). Thus, it is necessary to develop a context-dependent educational program to nurture university students' EI.

In the context of Japan, one of the largest economies in the world, EIs are extremely low compared with other countries, despite business-friendly regulations and low business taxes compared with other developed nations (Kegel 2016). According to the Global Entrepreneurship Monitor (GEM), Japan's EI score was lowest among 50 countries surveyed (Bosma et al. 2020). Scholars have explained this from various aspects such as the traditional cultural climate, psychological factors (e.g., high level of uncertainty avoidance), lack of requisite skills, and financial system (Shinato et al. 2013). To foster nascent entrepreneurs, Japan's Ministry of Education, Culture, Sports, Science and Technology has offered "the program for leading graduate schools (Leading Program)" since 2011. The Leading Program supports 62 graduate programs in Japanese universities to nurture next-generation leaders with a broad perspective and creativity, and clearly relates to starting new businesses.

On a separate note, Clercq and Arenius (2006) insisted that "specific skills" and "personally knowing an entrepreneur" significantly affected the likelihood of being engaged in business startup activity. While graduate students certainly have their specific skills, they do not have many opportunities to know actual entrepreneurs. In this context, Saijo et al. (2016) designed and conducted a one-day entrepreneurial education workshop—1st Business Plan Competition (BPC)—for Leading Program students as an opportunity to consider starting a business as a career choice. In this workshop, the students competed with each other by modifying/reconstructing a business plan they had created with mentoring from actual entrepreneurs. As a result, students who received heterogeneous feedback from entrepreneurs and took it positively were more likely to start working toward their own business (Saijo et al. 2016). Thus, we believe that graduate students who focus on research will enhance their EI by interacting with entrepreneurs and building their own business plans with them. Therefore, we designed and conducted 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> BPCs for Leading Program students across Japan for three academic years.

This study explores how to enhance EIs of graduate students in Japan, based on answers to a survey taken by students who belonged to the Leading Program during the past three years. We also aim to verify the effectiveness of the designed BPCs and to obtain future suggestions for specific measures to increase their EIs.

## 2 Theoretical Background

### 2.1 *Entrepreneurial Intention and GEM Conceptual Framework*

EI refers to one's judgement of the likelihood of owning one's own business (Crant 1996) or the desire to start one (Krueger et al. 2000). As intentions toward behaviors are among the strongest behavior indicators (Ajzen 1985, 1991), many scholars regard EI as a crucial antecedent of actual entrepreneurial behaviors/actions (Krueger et al. 2000; Lee et al. 2011; Durán-Sánchez et al. 2019). On the other hand, EI can be strongly affected by one's country, since entrepreneurial activity takes place in a specific context (Bosma et al. 2020). Thus, as a theoretical foundation of this study, we employ one of the robust conceptual frameworks for differences in social, cultural, economic characteristics, namely, the GEM conceptual framework, which has been developed through surveys in economies from a wide range of regions and economic development level around the world since 1999. GEM regards entrepreneurial activities, including EIs, as being affected by societal values related to entrepreneurship and individual attributes. Here, societal values related to entrepreneurship include societal beliefs about it as a good career choice, whether entrepreneurs have high societal status, the extent to which media represents entrepreneurship positively in an economy, and how easy it is to start a business. Individual attributes include demographic characteristics, self-perception, and motives for starting a business (Bosma and Kelly 2018). These key indicators are used to discuss what influences potential entrepreneurs in each country to start a business. On the other hand, in the context of education, it is necessary to discuss what kind of educational support is needed to improve EI in order to encourage students to become entrepreneurs. GEM measures EI by the question, "Are you, alone or with others, currently trying to start a new business, including any self-employment or selling any goods or services to others?" However, it is difficult to imagine that answers to this would change during a short-term program. Thus, it is necessary to explore the factors influencing EIs and measure the program's effectiveness through these factors. Therefore, this study firstly seeks to determine the factors that affect EI and then examine changes in the factors during BPCs to assess the effectiveness of the workshops. To this end, we develop an extended causal model that can explain EIs.

### 2.2 *Intrinsic Motivation*

Scholars consider intrinsic motivation as a critical factor in behavior (Ohashi et al. 2021; Fortune et al. 2005; Tohidi and Jabbari 2012) and thus, it has been widely utilized as a predictor of intention to engage in specific behaviors (Standage et al. 2003; Ntoumanis 2001). Kage (1994) conducted a critical review of a series of studies on intrinsic motivation, stating that it is "a motivational state in which learning is

undertaken for its own sake and [...] the mastery orientation and autonomy are its essential components.” He also stated that goal orientation is importantly relevant to intrinsic motivation (Dweck 1986).

Therefore, in this study, the following three theories are included in the analysis to examine graduate students’ intrinsic motivation as antecedents/predictors of EIs.

**Mastery Orientation.** Mastery orientation is an aspect of learning oriented toward deepening knowledge and enhancing skills, and integrates the concepts of cognitive motivation, curiosity, challenge, and accomplishment (Kage 1994). Cognitive motivation consists of specific and diverse curiosity (Nishikawa and Amemiya 2015; Nishikawa 2011); the former refers to a desire for specific information that is lacking, and the latter to a desire for perceptual or cognitive stimulation that is novel, complex or surprising (Kidd and Hayden 2015; Renninger et al. 2019; Berlyne 1966). Harter (1981) described challenge in terms of challenging work, in contrast to the desire to do assigned easy work. Vallerand et al. (1992) defined intrinsic motivation toward accomplishment as engaging in an activity for the pleasure and satisfaction of attempting to achieve or create something.

**Autonomy.** Deci and Ryan (1987) insisted that autonomy support is generally associated with more intrinsic motivation. Here, autonomy is “an inner endorsement of one’s actions, the sense that they emanate from oneself and are one’s own. [...] The more autonomous the behavior, the more it is endorsed by the whole self and is experienced as action for which one is responsible (Deci and Ryan 1987).” Afterwards, they developed a self-determination theory that focuses on extent of autonomy to characterize notions of motivation (Ryan and Deci 2000; Gagné and Deci 2005). The theory posits a self-determination continuum, ranging from amotivation (completely lacking in self-determination) and four types of extrinsic motivation (varying in degree of self-determination) to intrinsic motivation (completely self-determined). Here, extrinsic motivation consists of external, introjected, identified, and integrated regulations. It should be noted that although introjected and integrated regulations are theoretically separated, Vallerand et al. (1992) stated these two factors are not statistically distinguishable. Thus, we adopted external, introjected, and identified regulations and intrinsic motivation to assess the respondents’ autonomy in this study.

**Goal Orientation.** Nicholls (1984) distinguished motivational states from two perspectives: task involvement, where learning and understanding are aims in themselves; and ego involvement, where learning is a means to differentiate oneself from others. Dweck (1986) described these two psychological states as goal orientation and termed task involvement as learning goal (to increase competence) and ego involvement as performance goal (to gain positive judgement/avoid negative judgement of competence).

### **2.3 Investment Model**

This study focuses on graduate students, who devote most of their time to research activities. Therefore, in order to examine the support that encourages graduate students into entrepreneurial activities, it is necessary to take into account the influence of activities other than entrepreneurial activities.

The model that attempts to explain human relationships with a certain number of variables based on exchange is social exchange theory, which includes the investment model (Aizawa 2003). According to the investment model (Rusbult et al. 1998), “commitment” is defined as a person’s desire to continue or deepen a relationship, and it depends on the “satisfaction level” with the relationship, the “investment size” (time, money, etc.) in the relationship, and the “quality of alternatives.” Although this model essentially seeks to explain relationships between people, we believe it can be applied to this study as follows. Satisfaction from entrepreneurial activities and extent of prior investment will strengthen commitment, namely, EI. On the other hand, if the quality of other activities, such as research, is high, commitment to entrepreneurial activities will be suppressed. Therefore, we employ the investment model to explain EIs of graduate students in this study.

## **3 Objectives**

This study explores what kind of educational programs are necessary to increase the EIs of graduate students. For this purpose, we analyze the results of an entrepreneurship education program (i.e., BPC) for students belonging to the Leading Program over three academic years. Through this analysis, we aim to obtain implications on how to develop programs that promote entrepreneurship in Japanese graduate schools. Specifically, we 1) build an extended causal model based on the GEM conceptual model to explain the formulation of graduate students’ EI, and 2) evaluate the designed BPCs’ effectiveness.

## **4 Research Methodology**

### **4.1 Participants and Data Collection**

In total, a sample of 189 responses from 25 universities in Japan was obtained. It consisted of 33 respondents among 2<sup>nd</sup> BPC participants, 41 among 3<sup>rd</sup> BPC participants, and 60 among 4<sup>th</sup> BPC participants. BPC participants completed a digital or paper version of the questionnaire before and after the BPC. It should be noted that many scholars insist that students who want to be entrepreneurs tend to choose

an entrepreneurship major/participate in entrepreneurial programs, known as “self-selection bias” (Liñán 2004; Bae et al. 2014). To reduce the bias, the survey was also administered to students who belonged to the Leading Program but did not participate in the BPCs. For those who did not participate, we asked each university to administer a digital questionnaire with the same items as the pre-test for BPC participants. We finally collected 55 non-participants’ responses.

## 4.2 Questionnaire and Scaling

The questionnaire consisted of distinct groups of questions described in the theoretical background. It was written in Japanese and then translated into English by a professional translator. The authors checked the translations to minimize any differences in meaning. Before answering the survey, all respondents gave informed consent.

The questionnaire measures (1) societal values about entrepreneurship and individual attributes based on GEM survey (GEM 2014) (hereinafter GEM items); (2) respondents’ experiences of startups based on GEM survey (GEM 2014); (3) respondents’ commitment to startup activities based on the investment model written in Japanese developed by Komura et al. (2013); (4) mastery orientation toward startup-related activities based on Nishikawa and Amemiya (2015), Lepper et al. (2005), and Utvær and Haugan (2016); (5) autonomy regarding startup activities based on Nishimura et al. (2011); and (6) goal orientation regarding entrepreneurial activities based on Tanaka and Yamauchi (2000). It also asked about sociodemographic information: age, gender, nationality, and affiliation. These questions were presented as statements to which the respondents expressed their opinion using a seven-point Likert scale ranging from 1 (strongly agree) to 7 (strongly disagree), when it allowed. However, in this paper, we reversed the scale to make it more intuitive for the readers, i.e., 7 (strongly agree) to 1 (strongly disagree).

## 4.3 Description of BPCs

Tokyo Institute of Technology designed/organized and Leave a Nest Co., Ltd. facilitated all BPCs. This study analyzed the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> BPCs, held in February 2017, January 2018, and December 2018, respectively. The description of BPCs are follows.

**Pre-screening of Proposal and Pre-test.** Applicant individuals/groups (hereinafter teams) are required to submit their business plans for document review one to two months prior to the day of the BPCs. The plans were reviewed by a panel of about 10 judges representing university faculty, large companies, venture companies, and

government agencies. The review criteria are as follows: social and economic importance of the issue; specificity and originality of the solutions; effectiveness and impact of the proposal on society; completeness of the proposal; and feasibility of the proposal. Each item received a score of 1 to 5, and proposals were ranked based on total points. About 10 of the highest—scoring teams in each BPC were selected as finalists to participate in a one-day workshop with mentors (i.e., actual entrepreneurs). The number of finalists varied due to resource limitations in each BPC. Teams not selected as finalists were invited to participate in the poster session and make presentations on the day of the workshop. Also, all students were asked to answer the questionnaire before the day of the workshop.

**Workshop Session.** The aim of the one-day workshop was to make clear the milestones of the business proposal. The workshop session started with finalists pitching their proposal. Mentors (actual entrepreneurs) were then assigned to each team to help brush up the proposals through discussions. They used several worksheets we designed, and assigned facilitators encouraged the discussion between the finalists and the mentors. The finalists reflected their updated proposals in their presentation slides and pitched again.

**Poster Session.** Teams that were not selected as finalists were invited to the poster session on the day of the workshop. They made a presentation to the audience and the same judges from the workshop session.

**Post-test.** The questionnaire was administered as a post-test to all students in the BPC.

#### ***4.4 Data Analysis***

Our analysis consists of three distinct phases: assessment of student EI constructs; exploration of factors influencing their EI; and evaluation of the designed one-day workshop (i.e., BPC) conducted for three academic years. IBM SPSS Statistics 26 and Microsoft Excel 365 were used for all analyses.

**Exploratory Factor Analysis and Creation of Instrument.** Exploratory factor analysis (EFA) was performed for non-GEM survey items (i.e., introduced items based on the theories of intrinsic motivation and the investment model; see Sect. 2) to assess the dimensionality of the students' EI constructs, namely, our dependent variables. We used the listwise deletion method to handle the missing values. Extracted factors (hereinafter "EFA items") were named by author consensus based on subscales with factor loadings of 0.40 or higher. Latent variable scores were the mean scores of items with factor loadings of 0.40 or higher; a maximum of 7 points for comparison with the GEM items.

**Exploration of Factors Influencing EI.** We examined the relationship between student EI and sociodemographic attributes. EI was analyzed as a discrete response (yes/no) to the question: “Are you, alone or with others, currently trying to start a new business, including any self-employment or selling any goods or services to others?” Chi-squared test or Fisher’s exact test was carried out to assess whether the relation between two variables was independent or associated. We used listwise deletion to handle the missing values. We also examined psychological factors on EI, conducting binomial logistic regression analysis using GEM/EFA items as explanatory variables. Since age, nationality, and gender may have an effect (Brüne and Lutz 2020; Bosma et al. 2020), we included these as control variables.

Multicollinearity among explanatory variables (i.e., GEM/EFA items) were diagnosed by Pearson’s correlation coefficient and variance inflation factor (VIF). The general rule of thumb is that if the simple correlation coefficient between two variables exceeds 0.8 or 0.9, multicollinearity is an issue. Also, VIF values exceeding 10 tend to be regarded as indicating multicollinearity (Senaviratna and Cooray 2019; Midi et al. 2010). All Pearson’s correlation coefficients were below 0.8 and VIFs were below 10, ruling out multicollinearity as an issue.

**BPC Evaluation.** The effectiveness of BPCs was evaluated based on one-group pre- and post-test design. Although there are limitations to using such a design, it has been widely used in various education/learning contexts such as human services, nursing, and traditional school/university settings (Shek and Sun 2012). A paired—samples t-test was conducted to compare GEA/EFA items of BPC participants before and after the workshop/poster sessions. We used the listwise deletion method to handle the missing values.

As scholars have pointed out, the self-selection bias that students who want to be entrepreneurs tend to participate in entrepreneurial programs may be observed in this study. Thus, we compared sociodemographic and psychological variables of BPC participants and non-participants. Chi-squared test and Welch’s t-test were performed to assess socio-demographic differences and psychological differences, respectively.

## 5 Result and Discussion

### 5.1 Exploratory Factor Analysis

Exploratory factor analysis was conducted to grasp the underlying measurement scale patterns. Factors were extracted using the principal factor method, and promax rotation was used based on a prediction of a high correlation between factors. After factors extraction, “I am satisfied with my start-up activities,” which had a communality of  $< 0.3$ , was excluded from the analysis, and the analysis was conducted again under the same conditions. Items with loading  $< 0.4$  were eliminated. Finally, 10 factors with eigenvalues greater than one were extracted (Table 1). The latent variable scores were the mean scores of the items with factor loadings of 0.4 or higher.

Note that the loadings for “I want to undertake things that may be quite difficult for me” were above 0.4 for both “Willingness to take on a challenge” and “Hope for success,” and thus it was included in both latent variable scores in this study. The Cronbach’s alpha values examined the reliability of the instrument scale. All factors except for “quality of alternatives” were above 0.7, indicating reliability. On the other hand, when we exclude “There are other activities with which I can find the same satisfaction as I do with business start-up activities,” the Cronbach’s alpha value increased from 0.615 to 0.728. Therefore, we excluded it from the “quality of alternatives” factor in the later analysis.

**Table 1** Exploratory factor analysis ( $N = 137$ )

| Factor/questionnaire item   | Alpha/loading |
|---|---------------|
| <b><i>Willingness to take on a challenge</i></b>  | <b>0.906</b>  |
| If I am going to start a business, I want to tackle something that I have to think about carefully to find the right answers              | 0.959         |
| If I am going to start a business, I want to undertake a difficult challenge because I enjoy finding solutions                            | 0.919         |
| (I am involved in business start-up activities) because it is enjoyable to undertake difficult challenges                                 | 0.870         |
| If I am going to start a business, the more difficult the challenge, the more I will enjoy it   | 0.827         |
| (I am involved in business start-up activities) because it is interesting to solve problems   | 0.640         |
| I want to undertake things that may be quite difficult for me   | 0.471         |
| <b><i>Introjected/identified regulation</i></b>   | <b>0.826</b>  |
| (I am involved in business start-up activities) because I want to have a better career than other people                                  | 0.992         |
| (I am involved in business start-up activities) because in choosing my career I don’t want to get left behind by my colleagues or friends | 0.890         |
| (I am involved in business start-up activities) because I want people to think I am clever/smart  | 0.868         |
| (I am involved in business start-up activities) because I think it will lead to future success  | 0.427         |
| <b><i>Hope for success</i></b>  | <b>0.804</b>  |
| I am motivated by situations in which I may be able to test my capabilities   | 0.913         |
| When I can apply my full capabilities for a solution, I enjoy undertaking challenges  | 0.831         |
| I want to undertake things that may be quite difficult for me   | 0.618         |
| I find pleasure in creating a business plan that is better than one I created before  | 0.476         |

(continued)



**Table 1** (continued)

| Factor/questionnaire item  | Alpha/loading |
|--|---------------|
| <b><i>Amount of investment</i></b>   | <b>0.767</b>  |
| I am devoted to my start-up activities   | 0.925         |
| Much of my life is connected to business start-up activities   | 0.836         |
| I would have nothing else to do if I stopped my start-up activities  | 0.766         |
| I believe my start-up activities are better than any other activities  | 0.467         |
| <b><i>Performance goal</i></b>   | <b>0.854</b>  |
| My goal is to create a business plan that is better than those of the people around me                               | 0.715         |
| I try not to make business plans that are worse than those made by others  | 0.697         |
| I want to create good business plan to impress the people around me  | 0.646         |
| I am motivated when I think of creating a business plan that is better than those of other people                    | 0.593         |
| <b><i>Anxiety about failure</i></b>  | <b>0.822</b>  |
| I feel anxiety when my abilities and skills are tested   | 0.798         |
| I feel anxiety when I am confronted with difficulties I am not sure I can solve                                      | 0.774         |
| I often worry that I will make a bad business plan or fail   | 0.568         |
| I worry that I may make business plans that are worse than those made by others                                      | 0.521         |
| I don't like undertaking things that I am not sure I can achieve and that no one else knows anything about           | 0.415         |
| <b><i>External regulation</i></b>  | <b>0.874</b>  |
| (I am involved in business start-up activities) because people have told me I should start a business                | 0.902         |
| (I am involved in business start-up activities) because people will get mad at me if I don't start a business        | 0.872         |
| (I am involved in business start-up activities) because people won't leave me alone if I don't start a business      | 0.843         |
| <b><i>Intrinsic learning motivations</i></b>   | <b>0.897</b>  |
| I want to listen carefully to the opinions of people in the business world and people who have started businesses    | 0.972         |
| I want to know more and more detailed information about starting a business  | 0.912         |
| I want to learn as much as I can about the process and know-how of starting a business                               | 0.861         |
| (I am involved in business start-up activities) because starting a business is interesting                           | 0.414         |
| My start-up activities make me happy   | 0.402         |
| <b><i>Specific curiosity</i></b>   | <b>0.809</b>  |
| It bothers me when I cannot understand the process of starting a business; I feel that I must try to understand      | 0.678         |
| When I am preparing a business plan, I will continue to think about it until I get a clear idea of what I want to do | 0.495         |

(continued)

**Table 1** (continued)

| Factor/questionnaire item   | Alpha/loading |
|---|---------------|
| I want to thoroughly investigate the start-up process   | 0.412         |
| <b>Quality of alternatives</b>  | <b>0.615</b>  |
| The activities I may undertake hereafter, other than business activities, are very appealing to me  | 0.834         |
| There are other activities I find appealing besides business start-up activities (such as research, internships, other activities I am involved in) | 0.811         |
| There are other activities with which I can find the same satisfaction as I do with business start-up activities                                    | 0.434         |

Note: Cronbach’s alpha value is shown beside each factor (**bold**) and factor loadings are shown beside each item. Principal component analysis: Promax rotation with Kaiser normalization; loadings less than 0.40 are not shown. KMO = 0.858; Bartlett’s test  $\chi^2 = 5048.67$ (d.f. = 1081,  $p = 0.000$ ); Scale used: 7 (strongly agree) to 1 (strongly disagree)

### 5.2 Sociodemographic Factors on Entrepreneurial Intention (EI)

A chi-squared test of independence was performed to examine the relation between EI and sociodemographic variables (age, gender, nationality). As 27 years old is the age at which a Ph.D. degree can be obtained in a standard period in Japan, age was categorized as “younger (27 years old or younger)” or “older (over 27 years old),” and nationality was categorized as “Japanese” or “non-Japanese.” We found three significant interactions: The older group ( $N = 53$ ) is more likely than the younger group ( $N = 118$ ) to possess higher EI,  $\chi^2(1) = 8.44, p < 0.01$ ; male student group ( $N = 117$ ) is more likely than female group ( $N = 56$ ),  $\chi^2(1) = 5.58, p < 0.05$ ; non-Japanese student group ( $N = 84$ ) is more likely than Japanese group ( $N = 89$ ),  $\chi^2(1) = 8.79, p < 0.01$ .

On the other hand, as reported by the GEM, entrepreneurship differs greatly among countries, so we stratified the results by nationality (i.e., Japanese or non-Japanese) and conducted Fisher’s exact test. For the relationship between age and EI, no statistically significant difference was confirmed: for the Japanese older group ( $N = 8$ ) and younger group ( $N = 81$ ),  $p = 0.677$ ; for the non-Japanese older group ( $N = 45$ ) and younger group ( $N = 37$ ),  $p = 0.125$ . As for the relationship between gender and EI, a statistically significant difference was confirmed only for Japanese, indicating that Japanese women ( $N = 27$ ) had a lower EI than Japanese men ( $N = 62$ ),  $p = 0.037$ . By contrast, no statistically significant difference in EI was confirmed between non-Japanese women ( $N = 29$ ) and men ( $N = 55$ ),  $p = 0.173$ .

In short, it was found that older and international students have higher EI. Also, when comparing only Japanese students, men had higher EI than women. This trend was not observed among international students.

**Table 2** A model of entrepreneurial intention using GEM items

| Variable                                 | <i>b</i>     | <i>SE</i>    | Wald         | <i>p</i>     | OR           | 95% CI       |              |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|  |              |              |              |              |              | Lower        | Upper        |
| Perceived opportunity                    | 0.156        | 0.120        | 1.706        | 0.191        | 1.169        | 0.925        | 1.479        |
| <b>Perceived capability</b>              | <b>0.419</b> | <b>0.135</b> | <b>9.687</b> | <b>0.002</b> | <b>1.521</b> | <b>1.168</b> | <b>1.981</b> |
| Fear of failure                          | -0.150       | 0.107        | 1.968        | 0.161        | 0.861        | 0.699        | 1.061        |
| Equality                                 | 0.004        | 0.108        | 0.001        | 0.969        | 1.004        | 0.813        | 1.240        |
| Entrepreneurship as a good career choice | -0.243       | 0.135        | 3.261        | 0.071        | 0.784        | 0.602        | 1.021        |
| High status for successful entrepreneur  | 0.012        | 0.118        | 0.011        | 0.915        | 1.013        | 0.804        | 1.275        |
| High media attention                     | -0.108       | 0.122        | 0.780        | 0.377        | 0.898        | 0.707        | 1.140        |
| Age                                      | 0.109        | 0.057        | 3.668        | 0.055        | 1.115        | 0.997        | 1.247        |
| Female                                   | -0.411       | 0.414        | 0.985        | 0.321        | 0.663        | 0.295        | 1.492        |
| Non-Japanese                             | 0.645        | 0.478        | 1.825        | 0.177        | 1.906        | 0.748        | 4.860        |
| Constant                                 | -4.102       | 1.827        | 5.039        | 0.025        | 0.017        |              |              |

Note: **Bold** indicates statistical significance at the  $p < 0.05$  level. OR = odds ratio; CI = confidence interval; Method: simultaneous entry of variables; -2 Log likelihood = 182.127; Cox & Snell R Square = 0.214; Nagelkerke R Square = 0.293

### 5.3 Psychological Factors on Entrepreneurial Intention (EI)

We examined the association between EI (0 = no, 1 = yes) and psychological factors (i.e., GEM and EFA items). Binomial logistic regression was used to control for the potentially confounding roles of age, gender (0 = male, 1 = female), and nationality (0 = Japanese, 1 = non-Japanese). Model coefficients, statistical tests, odds ratios (ORs), and 95% confidence intervals for ORs are presented in Table 2 and Table 3. It was found that perceived capability (OR = 1.521) and amount of investment (OR = 2.848) are likely to increase EI, whereas external regulation (OR = 0.564) is likely to lower it.

### 5.4 Effectiveness of BPC Participation

A paired-samples t-test was conducted to compare GEM and EFA item scores in pre- and post-test conditions (i.e., before and after BPCs). We found three items that increased significantly after BPCs: “perceived opportunity” (pre: mean = 3.73 ± 1.69; post: mean = 4.11 ± 1.62;  $t(82) = 2.54, p < 0.05$ ), “entrepreneurship as a good career choice” (pre: mean = 3.68 ± 1.77; post: mean = 4.11 ± 1.61;  $t(80) = 2.62, p < 0.05$ ), and “amount of investment” (pre: mean = 3.09 ± 1.33; post: mean = 3.37 ± 1.26;  $t(82) = 2.53, p < 0.05$ ). In summary, the students’ participation in the BPCs

**Table 3** A model of entrepreneurial intention using EFA items

| Variable                           | <i>b</i>      | <i>SE</i>    | Wald          | <i>p</i>     | OR           | 95% CI       |              |
|------------------------------------|---------------|--------------|---------------|--------------|--------------|--------------|--------------|
|                                    |               |              |               |              |              | Lower        | Upper        |
| Willingness to take on a challenge | -0.314        | 0.280        | 1.261         | 0.261        | 0.731        | 0.422        | 1.264        |
| Introjected/identified regulation  | -0.247        | 0.199        | 1.539         | 0.215        | 0.781        | 0.529        | 1.154        |
| Hope for success                   | 0.080         | 0.338        | 0.056         | 0.813        | 1.083        | 0.559        | 2.100        |
| <b>Amount of investment</b>        | <b>1.047</b>  | <b>0.275</b> | <b>14.444</b> | <b>0.000</b> | <b>2.848</b> | <b>1.660</b> | <b>4.887</b> |
| Performance goal                   | 0.135         | 0.199        | 0.459         | 0.498        | 1.145        | 0.774        | 1.692        |
| Anxiety about failure              | -0.152        | 0.211        | 0.518         | 0.472        | 0.859        | 0.568        | 1.300        |
| <b>External regulation</b>         | <b>-0.572</b> | <b>0.285</b> | <b>4.024</b>  | <b>0.045</b> | <b>0.564</b> | <b>0.323</b> | <b>0.987</b> |
| Intrinsic learning motivation      | 0.341         | 0.310        | 1.210         | 0.271        | 1.407        | 0.766        | 2.585        |
| Specific curiosity                 | 0.118         | 0.233        | 0.257         | 0.612        | 1.126        | 0.713        | 1.777        |
| Quality of alternatives            | 0.193         | 0.240        | 0.642         | 0.423        | 1.212        | 0.757        | 1.943        |
| Age                                | 0.018         | 0.071        | 0.061         | 0.805        | 1.018        | 0.885        | 1.170        |
| Female                             | -0.494        | 0.544        | 0.826         | 0.364        | 0.610        | 0.210        | 1.772        |
| Non-Japanese                       | 0.405         | 0.607        | 0.444         | 0.505        | 1.499        | 0.456        | 4.929        |
| Constant                           | -4.363        | 3.000        | 2.114         | 0.146        | 0.013        |              |              |

Note: **Bold** indicates statistical significance at the  $p < 0.05$  level. OR = odds ratio; CI = confidence interval; Method: simultaneous entry of variables;  $-2 \text{ Log likelihood} = 117.911$ ; Cox & Snell R Square = 0.342; Nagelkerke R Square = 0.472

increased their awareness of new business opportunities around them, recognition that being an entrepreneur is a good career choice, and a sense of investing their own effort in entrepreneurial activities through preparation for the BPCs and time spent at the BPCs.

### 5.5 Self-selection Bias Toward BPC Participation

To evaluate self-selection bias, a chi-squared test of independence was performed to examine the relation between BPC participation and sociodemographic variables. We found that there is only one significant relation between the two. Non-Japanese students ( $N = 94$ ) are more likely than Japanese ( $N = 95$ ) to participate in BPCs,  $\chi^2(1) = 5.548, p < 0.05$ . Welch’s t-test was conducted to compare GEM and EFA item scores in BPC participant and non-participant groups. Two items showed statistically significant differences: “entrepreneurship as a good career choice” (participants:  $N = 117$ , mean =  $3.75 \pm 1.75$ ; non-participants:  $N = 55$ , mean =  $3.02 \pm 1.67$ ;  $t(110.39) = 2.64, p < 0.01$ ), and “amount of investment” (participants:  $N = 118$ , mean =  $3.04 \pm 1.35$ ; non-participants:  $N = 55$ , mean =  $2.40 \pm 0.97$ ;  $t(142.40) = 3.51, p < 0.001$ ). In summary, we found that students who feel that entrepreneurship

is a good career choice and who have already taken up related activities tend to participate in BPCs; thus, we concluded that the self-selection bias was also observed in BPCs. Considering the results in Sect. 5.4, it is clear that our designed BPCs tended to attract more students who perceived entrepreneurship as a good career choice and who were already engaged in entrepreneurship-related activities, which were further reinforced through the BPCs.

## 6 Conclusion

To design an educational program to enhance EI, we conducted a questionnaire survey to explore factors that lead to increasing EI, and designed/conducted the BPCs to examine their effectiveness. Through exploratory factor analysis, we identified 10 new factors that could explain EI and extended the GEM framework based on theories of intrinsic motivation and the investment model.

Regarding the relationship between EI and sociodemographic attributes, we found that older and international students tended to have higher EI. Notably, there was no statistically significant difference between male and female international students; however, EI of Japanese female students was statistically significantly lower than that of Japanese male students. Regarding EI and psychological factors, perception of sufficient ability to start a business, greater effort in entrepreneurial activities, and not feeling external pressure to start a business tended to increase EI. Based on the above, we believe that incorporating entrepreneurship education into university education as a whole, rather than one-shot workshops, increasing exposure to entrepreneurs and entrepreneurship-related activities, and increasing confidence in one's ability and investment in entrepreneurship will improve EI. As making it compulsory would be counterproductive, mechanisms that facilitate student initiative are needed. It was also suggested that Japanese universities need to focus on supporting female students.

The evaluation of the BPC we designed showed that the one-day workshop made students aware that there are business opportunities around them, that entrepreneurship is a good career choice, and that it increased the amount of investment in entrepreneurship. On the other hand, as pointed out by scholars, the self-selection bias was also observed in the BPC. Specifically, international students who already regarded entrepreneurship as a good career choice or had experience with it were more likely to join the BPC. The BPC was also found to further reinforce these students' attitudes toward entrepreneurship and their sense of investing in entrepreneurship-related activities.

In this study, we conducted questionnaire surveys to identify strategies to improve EI in universities throughout Japan. It is expected that the findings described in this paper will make entrepreneurship education at universities more effective, and that university students' entrepreneurial activities will become more active near future.

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# Perceptions of the Stakeholders on Work Readiness Among Graduates from Higher Education Institutions in Malaysia



**Khairul Azhar Mat Daud, Ena Bhattacharyya, Nik Zulkarnaen Khidzir, Balakrishnan Parasuraman, K. S. Savita, Pasupuleti Visweswara Rao, Jayaraj Vijaya Kumaran, Nik Muhammad Sabri Nik Hassan, and Zaty Azman**

**Abstract** The national unemployment rate is calculated as a proportion of the entire labour force that is unemployed. It is usually regarded as a significant measure of a country's labour market's performance which has resulted in graduate unemployment and necessity of actions should be taken on this matter. The low job placement rate can be attributed to their low level of work preparation. The largest numbers of graduates are produced each year, and business-related research should focus on unemployment. This study explores on Stakeholder's perceptions of work readiness among graduates from universities in Malaysia. There were 424 respondents where replied to the online survey which is divided by 311 students which is divided to 274 full time student and 37 part time student and 113 non-students. This study utilized an exploratory mixed method design. The investigation seeks to identify the required ecosystem, manpower needs, facilities as well as support system required to ensure the ease of graduate transition from the Institution of Higher Learning to

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K. A. M. Daud (✉) · N. Z. Khidzir · B. Parasuraman · J. V. Kumaran · N. M. S. N. Hassan  
Universiti Malaysia Kelantan, 16300 Bachok, Kelantan, Malaysia  
e-mail: [azhar.md@umk.edu.my](mailto:azhar.md@umk.edu.my)

N. Z. Khidzir  
e-mail: [zulkarnaen.k@umk.edu.my](mailto:zulkarnaen.k@umk.edu.my)

B. Parasuraman  
e-mail: [balakrishnan@umk.edu.my](mailto:balakrishnan@umk.edu.my)

J. V. Kumaran  
e-mail: [jayaraj@umk.edu.my](mailto:jayaraj@umk.edu.my)

E. Bhattacharyya · K. S. Savita · Z. Azman  
Universiti Teknologi Petronas, Persiaran UTP, 32610 Seri Iskandar, Perak, Malaysia  
e-mail: [ena\\_bhattacharyya@utp.edu.my](mailto:ena_bhattacharyya@utp.edu.my)

K. S. Savita  
e-mail: [savitasugathan@utp.edu.my](mailto:savitasugathan@utp.edu.my)

P. V. Rao  
Universiti Malaysia Sabah, Jalan UMS, 88400 Kota Kinabalu, Sabah, Malaysia  
e-mail: [pvrao@ums.edu.my](mailto:pvrao@ums.edu.my)

Industry 4.0 and beyond. The study is aimed at ensuring that current work readiness of today's graduates can be transferred to Industries of tomorrow. Employers place a high value on graduate's work readiness, according to focus group discussion made by the researcher.

**Keywords** Work readiness · Stakeholders · Unemployment · Perception and future skills

## 1 Introduction

With the change in the way of work in Industry 4.0, it is inevitable that changes are also expected out of work readiness of graduates. Studies resonate such concerns faced by graduates of the twenty-first century (Bhattacharyya 2017; Jackson 2016, 2015; Higdon 2016). When human capital exceeds the demands of the employers, we need to be concerned over the employability of our graduates reported at 3.3% as graduates do not get any appropriate job tandem with their qualification upon graduation. There is evident vacuum between academia training and industry needs. Should such concerns be left unchecked, the desire for a developed nation status by 2020 and that of a transformed nation by 2050 probably won't come true (Ministry of Education Blueprint 2012; Transformasi Nasional 2017).

In relation to the issues on graduate unemployment among developing countries, several concerns are raised over the quality and relevance of current education systems to train and equip graduates to face greater challenges in view of rapid development of technologies in industries (Ibrahim and Mahyuddin 2017). Where and who does the fault lie with if work readiness are not transferable from that of the Institution of Higher Learning to the Industry? Little is known whether the training received in acquiring all skills and competency development in IHLs are deemed appropriate or transferable to Industry. This study is aimed at ensuring that current work readiness of today's graduates can be transferred to Industries of tomorrow. The main aim of this research is whether the current work readiness training is relevant with Industry needs? To achieved the main aim of this study, some research question regarding on graduates attributes, training, and current curricullum were tandem with industr needs?

## 2 Literature Review

With rapid globalization and changes in the economic development of the country toward an industrialized nation, there has been a tremendous impact and change in graduate skills and competencies expected in the workplace. Coupled with the advent of the Industrialized era 4.0 and digitalized economies, there is now a change in the nature of work and how graduates approach the way of work in the 21<sup>st</sup> century

(Bezuidenhout 2011). There is less dependence on the manufacturing industry and more towards that of a knowledge based economy propagated with the use of Information Technology. Decentralization, information sharing, teamwork and innovation are now key employability skills expected of graduates in Industry 4.0 and beyond.

With the change in the way of work, it is inevitable that changes are also expected out of work readiness. Studies indicate that essential skills deemed in the 1990's far differ from what is expected of graduates in today's workplace and industry (Stefanescu 2015; Zwane et al. 2014; Nkosana et al. 2014). Stakeholders from both the academic community and industry practitioners constantly voice concern over graduate employability and work readiness faced by graduates in fourth industries revolution (4IR) (Bhattacharyya 2017; Jackson 2016, 2015; Higdon 2016). In addition, the fact that supply of human capital exceeds employers' demands casts a grave concern over the employability of our graduates (Ibrahim and Mahyuddin 2017). Ibrahim and Mahyuddin (2017) also stated that on year in 2015 unemployment rate among graduates at Malaysia is around 10.7%. There is three times higher than national unemployment rate. National unemployment rate is around 3.1%. In regional economies, Malaysia is among country were noted of graduates unemployment in number of double digits. Although unemployment rate has considerably lessened, the Department of Statistics, Malaysia (2017) indicates the rate of unemployment at 3.3% which means that graduates may not obtain immediate career placement upon graduation. In accordance to Malaysia's graduate population, the figure stands at 434,000 (of its 13-million labor force) as of December 2012 (Chiew 2013). This translates to 54,103 unemployed graduates who had not attained job placement six months upon completion of graduate degree programs from public universities, private universities or colleges (Haziq Alfian 2017).

These concerns should be left unchecked, the desire for a developed nation status by 2020 and that of a transformed nation by 2050 may not be a reality (Ministry of Education Blueprint 2012; Transformasi Nasional 2017). Thus, the question we ask ourselves whether the current work readiness training is relevant with Industry needs? Are graduates equipped with the apt work readiness to be utilized in the Industry?. Are the work readiness in tandem with Industry needs? Are Industry work readiness attribute requirement asymmetry with that of the training provided in Institutions of Higher Learning?

Scores of studies are written on the importance of non-technical skills or employability skills for graduates to be work ready upon entry to the workplace (Adnan et al. 2017; Seetha 2014; Sackey and Bester 2016; Solnosky et al. 2013; Omar et al. 2012). The success of future graduates lies not only in technical competence but more so in non-technical expertise via their ability to communicate, innovate, and respond to different challenges with an innovative an adaptive approach toward knowledge creation necessary for Industry 4.0 (Roblek et al. 2016; Kagermann 2015). Yet, limited literature is available to indicate the desired employability skills and work readiness required for the workplace (Bhattacharyya 2017; Driver 2017; Suleman 2016; Johan 2015; Jackson 2013).

More importantly, are these skill sets deemed transferable from that of the Institution of Higher Learning to the Industry and vice-versa. The issue of transferability

is crucial as it denotes the relevance of academic training received by graduates while in the Institution of Higher Learning (Suarta et al. 2017; Wang and Tsai 2014). Should current skills be redundant, curriculum planning on competency skills development in Institutions of Higher Learning (IHLs) should be relooked to ensure prudent economic and financial investment in the apt desired competencies be met to meet work demands of future workplace organizations (Devadason et al. 2010). The transferability of employability skills and work readiness is also vital as graduate employability determines the success of degree programs and marketable recognition offered by IHLs globally (Diver 2017; Paramasivam and Muthusamy 2012; Abdullah et al. 2008).

These developments in graduate unemployment have raised several key policy questions for emerging economies, regarding enhancing the quality and relevance of education systems to prepare for rapidly evolving industries, the types of jobs being created and the readiness of the human capital base, and measures to enhance matching in the labour market and alleviate information asymmetry on industry skill needs (Ibrahim and Mahyuddin 2017). In addition, there remains limited study on measuring employability and work readiness in the new world of work (Bezuidenhout 2011; Boden and Nedeva 2010). Competence through the fusion of both domains of specific knowledge and generic skills is required to increase graduates' competence to gain employability and be work ready (Khir 2006). A number of reports issued by employers have urged universities to make more explicit efforts to develop the 'key', 'core', 'transferable', 'soft', 'employable' and/or 'generic skills' or competencies needed in many types of employment.

Among some of the competencies are Communicative competence is relatively associated to the learner's ability to effectively use a second or foreign language to communicate one's ideas effectively (Oya et al. 2004). For some graduates, communicating in second language or foreign language creates speaking anxiety. This may lead to some compromise in the critical thinking skills, although not lacking in ideas and knowledge, and result in graduates lacking the communicative ability to verbalize critical thoughts, interpretations and observations—that may inadvertently translate to poor performance (Manalo et al. 2013). In other words, intangible skill acquisition can only be articulated if graduates possess the linguistic and rhetorical competence. While the Workplace readiness is a relatively new concept in predicting graduate potential. Caballero, Walker, and Fuller-Tyszkiewicz (2011) stated that work readiness exemplifies the desired degree that graduates actually possess the required attitudes and attributes that enable them to be ready to face the real workplace environment. For graduates to be deemed as being work ready, one exhibits the potential, ability and rigor to overcome challenges in the workplace and are able to show their ability, success and career progression in their jobs.

Other literature such as Casner et al. (2006) were defines the scope of work readiness to include skills such as Professionalism/Work Ethic, Teamwork/Collaboration, Oral Communications, Ethics, Social Responsibility, Reading Comprehension, English Language (spoken), Critical Thinking, Problem Solving, Information Technology Application, Written Communications, and Diversity. In addition, the applied skill related to the work readiness includes Information Technology Application.

These skills have been deemed as “excellent and necessary skills” by employers (Casner et al. 2006).

Despite all the graduate training and exposure to non-technical skills, why then are there scores of unemployment among our graduates? It is also crucial to address the factors that hinder transferability of employability skills and adaptive work readiness of graduates to industry which may possibly include the Institution of Higher Learning ecosystem, teaching and learning facilities, teaching and learning approaches and financial expenses involved in industry engagement (Zanko et al. 2011). Singh and Singh (2008) makes mention of course contents and methods of learning at educational institutions that need to be improved and revised. Where is the source of the problem? Are graduates provided with the right training and exposure to the apt required skills necessary for the workplace? Where and who does the fault lie with if work readiness are not transferable from that of the Institution of Higher Learning to the Industry?

Little is known whether the training received in acquiring all skills and competency development in IHLs are deemed appropriate or transferable to Industry. For this purpose, further insight of stakeholder perceptions on transferability of students’ communicative competence in work readiness from institution of higher learning to industry environment is required. The investigation seeks identify the required ecosystem, manpower needs, facilities as well as support system required to ensure the ease of graduate transition from the Institution of Higher Learning to Industry 4.0 and beyond. This study were aimed at ensuring that current work readiness of today’s graduates can be transferred to Industries of tomorrow.

### 3 Works Readiness

Commonly, academic achievement and high technical skills is a very crucial factors to be concerned in order to equipped graduates for their future careers (Roth and Bobko 2000). (ACNielsen Research Services 2000) stated that the factors which is determine the degree of intellectual ability, learning ability and motivation to embrace successful is depend on the performance on academic achievements. However, in era of fourth industrial revolution academic performance or technical capabilities cannot working alone in order to determined graduates performance and achievement. In 21th centuries, industries nowadays looking graduates whose have a various general skills and specialites. Today trends, many employers interested with a graduates applicants whose have a multiskills and attributes that enable them to “prepare” or “prepare” for success in to the future by continously self learning to explore a new technology were rapidly changing work environment. In addition, there have many literature mentioned about the concept of work preparation. It’s about how employer predicted the potential of graduates to working at their organization or company (Hart 2008; Barrington and Wright 2006; and ACNielsen Research Services 2000).

## 4 Employer Perspectives on Graduate Work Readiness

Gardner and Liu (1997) was conducted a survey of more than 150 employers who were required to observe their new graduates in order to compare and evaluate their job preparation and job performance requirements. The sample of participants includes technical graduates (such as engineering, computer science, accounting) and non-technical graduates (such as commerce, social sciences, and communications). The purpose of the research is to evaluate graduates' performance in specific skills/capabilities required for work, and to evaluate graduates' educational and social readiness for work. 52 skills and abilities are divided into 9 categories, including: (1) speaking and listening, (2) reading, (3) writing, (4) mathematics, (5) thinking and reasoning, (6) organization skills, (7) Analyze and analyze data, (8) job skills, and (9) personal skills. The study found that some employers believe that their graduate employees are not fully prepared for entry-level jobs. Although employers are generally satisfied with the performance of graduates, there are still some significant differences between job requirements and graduate preparation. In general, technical graduates are less prepared than non-technical graduates in speaking, listening, writing, organization and personal skills. For technical and non-technical graduates, there is a lack of work preparation in terms of relationships and personal abilities. These skills are not taught directly in the classroom (Gardner and Liu 1997). However, nowadays, it is common for undergraduate courses to provide practical units that allow students to experience developing relationships and personal abilities outside of the classroom. Therefore, these findings may not apply to today's graduates.

In addition, (Hart 2008) study of 301 organizations found that although employers are generally satisfied with graduates' entry-level skills, they are less confident that graduates have the skills and knowledge necessary for promotion and promotion within the organization. Among the 12 key skill areas, employers believe that global knowledge, self-direction, writing, critical thinking, and adaptability are the areas where graduates are least prepared for work and therefore need to be improved.

Similarly, Casner et al. (2006) were conducted surveyed toward 400 US organizations on the readiness of graduates and clarified the application skills needed for 11 new recruits to succeed in the workplace. Employers consider professional ethics, oral and written communication, teamwork, collaboration, critical thinking and problem solving to be the most important skills for new graduates to enter the workplace. Regarding the overall preparation or work preparation of graduates, 24% of employers rated university graduates as "excellent", 65% of employers rated it as "sufficient", and 9% of graduates rated it as "inadequate". In addition, in terms of written communication skills and leadership skills, graduates were rated as the least prepared.

Regarding to the previous studies and industries needs, research have been conducted in order to identify the work readiness skills deemed necessary for transferability by stakeholders (students, Institution of Higher Learning administrators, employers and policy makers in institution of higher learnings). The objective of this

studies is very clear, it is to seeking the answer about what are the work readiness skills deemed necessary for transferability by stakeholders (students, Institution of Higher Learning administrators, employers and policy makers in Institution of Higher Learnings)?

### 5 Methodology

This study utilized an exploratory mixed method design. The combination of qualitative and quantitative methods complements each dimension (Fig. 1). A mixed method is chosen on this study in order to obtain a more comprehensive view and in-depth understanding of the research objective (Bhattacharyya 2014). Many studies have acknowledged the merits in mixing both quantitative and qualitative data collection in a single study (Creswell et al. 2003). Greene (2000) stated that for both quantitative and qualitative methods provide the flexibility to a researcher to investigate a research problem according to the research objective and purpose of the study. Quantitative methods suggest different layers of data, enriches the study and allows

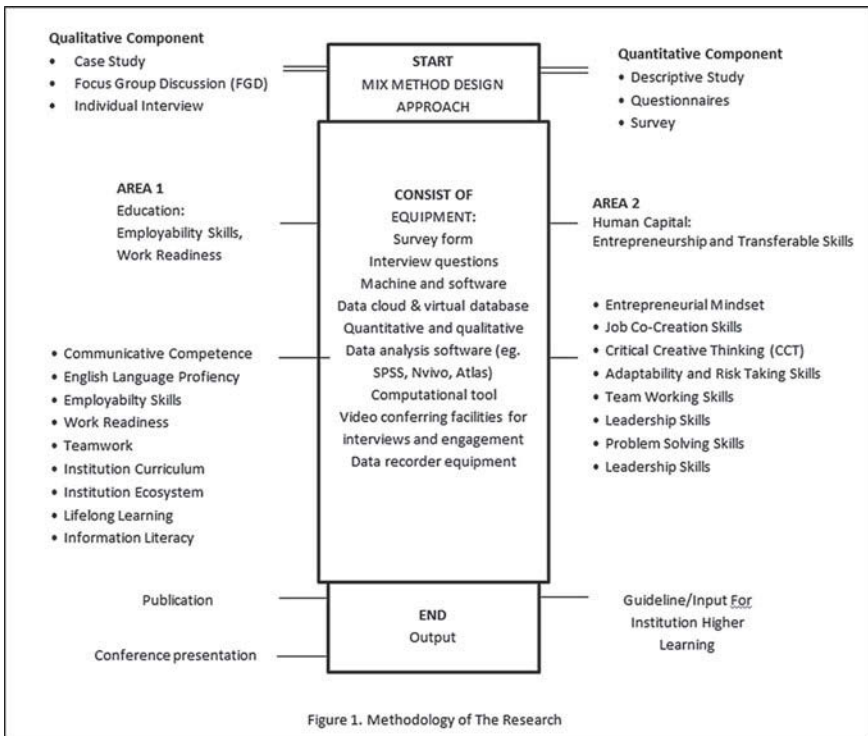


Figure 1. Methodology of The Research

Fig. 1 Methodology of the research

a researcher to study a large sample of participants which otherwise may not be feasible (Greene 2000). In addition, qualitative methods allow researchers to better understand the research context, insider experiences, close and direct engagement with the participants and settings (Creswell and Clark 2007). Thus, it is for the main reason why mixed method design was used to investigate the research objective. In scope of qualitative method, focus group discussion (FGD) among selected stakeholders being organized. In focus group discussion, data were collect via interview session and discussion in group. Have two different group were involved in FGD session, there are ex-students (Alumni) and the rest is an employers from public and privates sectors. All data have being recorded and analysed. Findings from interview analysed were used to develop research instrument in form of set of questionnaires. Then, the questionnaires were distributed to all respondents via email, whatsapp and any appropriates media social platform. Figure 1 show the entire methodology was implemented in this study.

The samples involved in this study are 424 respondents from Institutions of Higher Learning in Malaysia which is divided by 311 students and 113 non-students. The sample size of interview respondents will be purposively sampled to attain data based on the respondents' willingness to share their feedback. There will be interviews with employers, Institution of Higher Learning administrators and policy makers of IHLs. The purpose is to identify and correlate the factors between real world practices of the Institution of Higher Learning and Industry practitioners of the professional workplace by enhancing the quality and relevance of education systems to prepare for rapidly evolving industries. This way academia and industry work readiness efforts area aligned to industry job creation, human capital base, in line with the economic labour market needs necessary for nation building efforts.

## 6 The Development of Research Instrument

The development of research instrument is started by making the systematic literature review (SLR) for main research which is focusing on work readiness among university's graduate. From the finding of systematic literature review, a focus group discussion (FGD) was conducted between the researcher and the stakeholders. In this study, stakholders consists of final year students, graduates, employers and academicians. FGD session was conducted in different session within 2 h for each group of respondents. Figure 2 show the procedure to design and develop research questionnaire on work readiness.

Research instrument to measure the perception of work readiness among graduates and employers obtain two main sections. There are section A for collected data on profile of respondents and section B is to collected data on work readiness perception. In section B, questions was setting based on finding were got from SLR and FGD session.

Table 1 show the entire variables were got from the finding of SLR and FGD. All of these variables are the main source of the quantitative research questionnaire



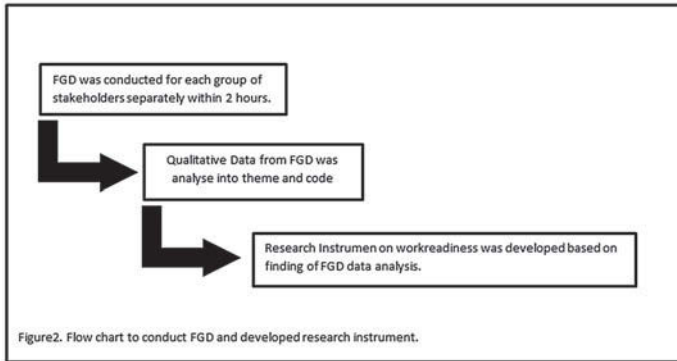


Fig. 2 Flow chart to conduct FGD and developed research instrument

which is made to gathering large amounts of data from university’s graduate student in Malaysia. Discussion between all the researchers that have been involved in this research study was done countless of time to perfect the questionnaire. Due to Covid-19, an online survey of the pilot test of this study has to be done in order to get the data from employers and universities graduate.

## 7 Validity and Reliability of Instrument

To ensure the level of feasibility and validity on the questionnaire, the face validity process was conducted by involved with two expertises in social science field. The validity form of content experts had to be done and send to the experts. Experts were chose based on specialty and longtime experience dealing with perfecting the questionnaire. They are asked to review and giving their feedback on the questionnaire as face validity of the research study.

The expert’s opinion on research study’s questionnaire feedback toward the questionnaire show that Section A which is section of profile of respondent is to re-design the question to ensure the coverage of the reply is more analytical and full range. While, their feedback toward Section B which is work readiness is need to be revised again. An improvement toward the questionnaire base on feedback from expertise has been made by the researchers for final test to gather the data from employers and universities graduate in Malaysia and those data will be the main source of this research study.

Then, the pilot test was conducted after the questionnaire being revised by counted some suggestion and advised from expertise onto face validity. The conducting of pilot test in social science research is to determine the degree of validity towards research instruments. The data from pilot test which involving 65 person whose are related with universities whether they are final year students, employees or employers has been used to measure the reliability of the questionnaire as an instrument of the

**Table 1** Variables and items in every section in questionnaire

| Section                      | Items   | No of Items |
|------------------------------|---|-------------|
| A. Profile of the Respondent | <ol style="list-style-type: none"> <li>1. Name</li> <li>2. Gender</li> <li>3. Contact Number</li> <li>4. Name of Institution/Workplace</li> <li>5. Job Sector</li> <li>6. Current State of Residence</li> <li>7. Ethnicity</li> <li>8. Nationality</li> <li>9. Area of Degree Specialization</li> <li>10. Parents/Guardian/Personal Background</li> <li>11. Current academic status</li> <li>12. Category/Position/ Designation</li> <li>13. Cumulative Grade Point Average (CGPA)</li> <li>14. Participation in Extra-Curricular Activities</li> <li>15. Level of participation in Board Committee</li> <li>16. Duration of Internship/Industry placement</li> <li>17. Internship type</li> </ol>  | <b>17</b>   |
| B. Work Readiness            | <ol style="list-style-type: none"> <li>1. Seek work relevant to one’s area of expertise</li> <li>2. Present oneself in interviews</li> <li>3. Identify the skills needed to improve in the workplace</li> <li>4. Evaluate how well the skills fit in the workplace</li> <li>5. Understand the practices used in the discipline</li> <li>6. Identify the standards of practice expected in the profession</li> <li>7. Collect, analyse and organize information</li> <li>8. Communicate effectively with people</li> <li>9. Function effectively in a team</li> <li>10. Possess written communication skills that secure employment</li> <li>11. Possess oral communication skills that secure employment</li> <li>12. Adapt to changing circumstances</li> <li>13. Independent time planning</li> </ol> | <b>13</b>   |

research study. All the data from online survey is analyse using the SPSS software to find out the Cronbach alpha value to measure the reliability statistics. Cronbach’s alpha,  $\alpha$  (or coefficient alpha), developed by Lee Cronbach in 1951, measures reliability, or internal consistency. “Reliability” is how well a test measures what it should. If Cronbach’s alpha is below 0.60 meaning it is unacceptable, if Cronbach’s alpha between 0.60 to 0.65 meaning it is undesirable, if Cronbach’s alpha between 0.65 to 0.70 meaning it is minimally acceptable, if Cronbach’s alpha between 0.70 to 0.80 meaning it is respectable, if Cronbach’s alpha between 0.80 to 0.90 meaning it is very good and if Cronbach’s alpha much above 0.90 consider shortening the scale. In general, a score of more than 0.7 is usually okay. However, some authors suggest higher values of 0.90 to 0.95. The good value of Cronbach’s alpha will determine the questionnaire as reliability instrument. Table 2 are showing that work readiness

**Table 2** Cronbach's alpha value for each construct on work readiness

|   | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| Work readiness  | 47.3436                    | 20.316                         | 1.000                            | 0.884                            |
| B1. Seek work relevant to one's area of expertise                 | 47.5281                    | 20.977                         | 0.380                            | 0.904                            |
| B2. Present oneself in interviews                                 | 47.4025                    | 20.741                         | 0.460                            | 0.900                            |
| B3. Identify the skills needed to improve in the workplace        | 47.2508                    | 20.482                         | 0.636                            | 0.892                            |
| B4. Evaluate how well the skills fit in the workplace             | 47.3101                    | 20.495                         | 0.625                            | 0.892                            |
| B5. Understand the practices used in the discipline               | 47.3006                    | 20.287                         | 0.644                            | 0.891                            |
| B6. Identify the standards of practice expected in the profession | 47.3906                    | 19.994                         | 0.669                            | 0.890                            |
| B7. Collect, analyse and organize information                     | 47.3575                    | 20.401                         | 0.601                            | 0.893                            |
| B8. Communicate effectively with people                           | 47.2200                    | 20.870                         | 0.595                            | 0.894                            |
| B9. Function effectively in a team                                | 47.2105                    | 20.819                         | 0.593                            | 0.894                            |
| B10. Possess written communication skills that secure employment  | 47.4191                    | 20.338                         | 0.543                            | 0.896                            |
| B11. Possess oral communication skills that secure employment     | 47.3219                    | 20.321                         | 0.653                            | 0.891                            |
| B12. Adapt to changing circumstances                              | 47.3646                    | 20.278                         | 0.602                            | 0.893                            |
| B13. Independently plan the time                                  | 47.3906                    | 20.289                         | 0.572                            | 0.895                            |

Cronbach's alpha is 0.884 meaning it is very good. Its also show alpha cronbach value in each construct on work readiness is very high (more than 0.8) which is the level of reliability is very high.

## 8 Data Analysis and Finding

The data obtained were then analyzed using SPSS Version 27 software. The mean value for each construct of work readiness was taken to compare between the degree of work readiness among male and female graduates. In addition, the significant level of the relationship between men and women was also seen to determine whether there is a significant relationship or not for both male and female respondents on the level of work readiness among them.

Table 3 shows that for each construct in work readiness, the mean values for both male and female groups were almost the same and there was no significant change. Therefore, to see whether there is a significant difference between male and female graduates on their work readiness level, then T test was conducted. The results of T test can be seen in Table 4.

Based on Table 2, it is found that the t-value for the comparison of the level of work readiness of graduates in institutions of higher learning for male graduates and female graduates is  $t = 2.231$  and the significant level of  $p = 0.965$ . This significance level was greater than 0.05 ( $p > 0.05$ ). Therefore, the null hypothesis ( $H_0$ ) is accepted. So, there is no significant difference for the level of work readiness between male and female graduates.

The mean score of the work readiness level among male graduates (mean = 3.603) was smaller than female graduates (mean = 3.678). Nevertheless with a small difference, it can be concluded that the level of work readiness between female and male graduates are in the same level.

## 9 Discussion

Referring to the findings of this study, it was found that the perception among employers and universities graduates towards male and female graduates in current scenario have a same degree on work readiness. Finding showed that the level of work readiness among graduates was moderate for both, male and female representative. This shows that graduates have gone through a fair learning process. The current curriculum of study does not seem to have a positive impact on the level of work readiness towards graduates. Students' readiness to work was measured by assessing several key parameters such as level of self-confidence, self-skills, lifelong learning, communication skills, practical skills, interpersonal skills, digital skills, numeracy skills, leadership skills and entrepreneurial skills. All work readiness constructs could be mapping on each learning domains. The common learning

**Table 3** The level of work readiness towards gender

| Work readiness constructs   | Male           |      | Female |      |
|---|----------------|------|--------|------|
|   | Work Readiness | Mean | 3.60   | Mean |
|   | SD             | 0.34 | SD     | 0.35 |
| B1. Seek work relevant to one’s area of expertise                 | Mean           | 3.43 | Mean   | 3.48 |
|   | SD             | 0.68 | SD     | 0.58 |
| B2. Present oneself in interviews                                 | Mean           | 3.54 | Mean   | 3.63 |
|   | SD             | 0.63 | SD     | 0.56 |
| B3. Identify the skills needed to improve in the workplace        | Mean           | 3.71 | Mean   | 3.76 |
|   | SD             | 0.52 | SD     | 0.47 |
| B4. Evaluate how well the skills fit in the workplace             | Mean           | 3.65 | Mean   | 3.69 |
|   | SD             | 0.52 | SD     | 0.48 |
| B5. Understand the practices used in the discipline               | Mean           | 3.62 | Mean   | 3.74 |
|   | SD             | 0.58 | SD     | 0.45 |
| B6. Identify the standards of practice expected in the profession | Mean           | 3.55 | Mean   | 3.64 |
|   | SD             | 0.57 | SD     | 0.52 |
| B7. Collect, analyse and organize information                     | Mean           | 3.56 | Mean   | 3.69 |
|   | SD             | 0.57 | SD     | 0.48 |
| B8. Communicate effectively with people                           | Mean           | 3.78 | Mean   | 3.76 |
|   | SD             | 0.42 | SD     | 0.49 |
| B9. Function effectively in a team                                | Mean           | 3.76 | Mean   | 3.79 |
|   | SD             | 0.49 | SD     | 0.44 |
| B10. Possess written communication skills that secure employment  | Mean           | 3.55 | Mean   | 3.59 |
|   | SD             | 0.59 | SD     | 0.58 |
| B11. Possess oral communication skills that secure employment     | Mean           | 3.65 | Mean   | 3.68 |
|   | SD             | 0.50 | SD     | 0.51 |
| B12. Adapt to changing circumstances                              | Mean           | 3.55 | Mean   | 3.69 |
|   | SD             | 0.58 | SD     | 0.52 |
| B13. Independent time planning                                    | Mean           | 3.51 | Mean   | 3.67 |
|   | SD             | 0.60 | SD     | 0.53 |

**Table 4** The level of work readiness towards gender

| Gender | No  | Mean  | Standard Deviation | t-value | Significance level |
|--------|-----|-------|--------------------|---------|--------------------|
| Male   | 198 | 3.603 | 0.346              | 2.231   | 0.965              |
| Female | 226 | 3.678 | 0.343              |         |                    |

**Table 5** The mapping of learning domain with work readiness construct

| Work readiness Constructs   | Learning Domain              | Male |      | Female |      |
|---|------------------------------|------|------|--------|------|
|   |                              | Mean | SD   | Mean   | SD   |
| Work Readiness  |                              | Mean | 3.60 | Mean   | 3.68 |
|   |                              | SD   | 0.34 | SD     | 0.35 |
| B1. Seek work relevant to one’s area of expertise                 | Affective (Evaluate)         | Mean | 3.43 | Mean   | 3.48 |
|   |                              | SD   | 0.68 | SD     | 0.58 |
| B2. Present oneself in interviews                                 | Cognitive (Explain)          | Mean | 3.54 | Mean   | 3.63 |
|   |                              | SD   | 0.63 | SD     | 0.56 |
| B3. Identify the skills needed to improve in the workplace        | Affective (Evaluate)         | Mean | 3.71 | Mean   | 3.76 |
|   |                              | SD   | 0.52 | SD     | 0.47 |
| B4. Evaluate how well the skills fit in the workplace             | Cognitif (Evaluate)          | Mean | 3.65 | Mean   | 3.69 |
|   |                              | SD   | 0.52 | SD     | 0.48 |
| B5. Understand the practices used in the discipline               | Cognitive (Understand)       | Mean | 3.62 | Mean   | 3.74 |
|   |                              | SD   | 0.58 | SD     | 0.45 |
| B6. Identify the standards of practice expected in the profession | Cognitive (Knowledge)        | Mean | 3.55 | Mean   | 3.64 |
|   |                              | SD   | 0.57 | SD     | 0.52 |
| B7. Collect, analyse and organize information                     | Cognitive (Analyses)         | Mean | 3.56 | Mean   | 3.69 |
|   |                              | SD   | 0.57 | SD     | 0.48 |
| B8. Communicate effectively with people                           | Affective (Giving Feed Back) | Mean | 3.78 | Mean   | 3.76 |
|   |                              | SD   | 0.42 | SD     | 0.49 |
| B9. Function effectively in a team                                | Affective (Accept)           | Mean | 3.76 | Mean   | 3.79 |
|   |                              | SD   | 0.49 | SD     | 0.44 |
| B10. Possess written communication skills that secure employment  | Affective (Giving Feedback)  | Mean | 3.55 | Mean   | 3.59 |
|   |                              | SD   | 0.59 | SD     | 0.58 |
| B11. Possess oral communication skills that secure employment     | Affective (Giving Feedback)  | Mean | 3.65 | Mean   | 3.68 |
|   |                              | SD   | 0.50 | SD     | 0.51 |
| B12. Adapt to changing circumstances                              | Affective (Giving Feedback)  | Mean | 3.55 | Mean   | 3.69 |
|   |                              | SD   | 0.58 | SD     | 0.52 |
| B13. Independent time planning                                    | Affective (Accept)           | Mean | 3.51 | Mean   | 3.67 |
|   |                              | SD   | 0.60 | SD     | 0.53 |

domains are cognitive, affective and psychomotor. The mapping in between learning domain and work readiness construct were doing to show the relation of work readiness and current curriculum in general way. Based on the findings of this study, by mapping the research finding on each constructs with learning domains it’s found that the attributes of current graduates were around in the low level of each learning domains.

The cognitive domain is seen as being dominated at the level of knowledge and understanding only compared to the higher level on cognitive domain such as application, analysis, evaluation and creation. Meanwhile, affective domains such as evaluating, giving feedback and communicating are also at a moderate level. The findings of this study are an indicator that the current curriculum were using at higher education institutions to producing students who are more relevant and meet the needs of the job market must to be reviewed and looking back. Curriculum in education should be tandem with the industries needed.

If the questions in the questionnaire of this study are mapped to the domains of cognitive, psychomotor and affective learning, it is found that the level of cognitive domains only revolve around the level of knowledge and understanding only. Meanwhile, the affective domain is focused on the level of the domain of receiving and giving feedback. Although, the research questions were mapped at the low domain level in the cognitive and affective categories but the tendency of graduates in answering the survey questions showed a relatively moderate level of mastery at the low domain level. In general, it is concluded that curriculum design and curriculum delivery methods in producing students with a high degree of work readiness must be reviewed and looking back.

## ***9.1 Conclusion and Future Perspectives***

If the questions in the questionnaire of this study are mapped to the domains of cognitive, psychomotor and affective learning as shown in Table 5 above, it is found that the level of cognitive domains only revolve around the level of knowledge and understanding only. Meanwhile, the affective domain is focused on the level of the domain of receiving and giving feedback. Although, the research questions were mapped at the low domain level in the cognitive and affective categories but the tendency of graduates in answering the survey questions showed a relatively moderate level of mastery at the low domain level. In general, it is concluded that curriculum design and curriculum delivery methods in producing students with a high level of work readiness should be reviewed.

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# A Literature Review on Mobile Augmented Reality in Education



**Yus Amira Mohd Yusuf, Ismahafezi Ismail,  
Wan Mohd Amir Fazamin Wan Hamzah, Mat Atar Mat Amin,  
and Mohd Azhar M. Arsad**

**Abstract** Technology can change the way students learn, become a powerful motivation, and trigger the learning process. This article discusses mobile augmented reality technology in education. Mobile Augmented Reality (MAR) is more effective in providing students with a positive, effective, and powerful learning experience. The researcher looked for Google Scholar and Scopus articles from the year 2015–2020. This advanced technology can help people communicate with each other's senses and experience applications, thereby stimulating consumers' interest through natural interaction. Researchers have been studying ways to incorporate enhanced environments into education so that students can participate in real-world environments. Related topics of the study are also mainly discussed: the past reviewers of systematic reviews, augmented reality education, Mobile Augmented Reality software development kits, Augmented Reality technology, user interfaces in Mobile Augmented Reality, and the future of Augmented Reality in education. Mobile augmented reality has aroused increasing interest in academia and industry. The real world and virtual information work together to create new educational opportunities. The research results indicate that augmented reality has various potentials and advantages and can be added to the field of education.

**Keywords** Mobile augmented reality · Education · Learning

## 1 Introduction

This research paper focuses on Mobile Augmented Reality (MAR) in education to help the AR community, especially researchers and students, to learn about Mobile Augmented Reality. Electronic tablets and smartphones are increasingly replacing books. Mobile Augmented Reality is an interactive technology for cross-domain and

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Y. A. M. Yusuf (✉) · W. M. A. F. W. Hamzah · M. A. M. Amin · M. A. M. Arsad  
Faculty of Informatics and Computing, University Sultan Zainal Abidin, Kuala Terengganu,  
Malaysia

I. Ismail  
V3X Malaysia SDN. BHD., Johor, Malaysia

destination apps. It has been expected that the number of users of Mobile Augmented Reality applications will increase to 2.2 billion by 2019 (Zhang 2019). The following sections comprise the remainder of this paper: Sect. 2 presents the previous reviews of systematic reviews of augmented reality education. In Sect. 3, the Augmented Reality in education is discussed. Section 4 explains Augmented Reality Techniques that can be used in Augmented Reality and Sect. 5 discusses Mobile Augmented Reality software development kits. Section 6 addresses user interface design. Finally, Sect. 7 presents the future of Augmented Reality and concludes this research with a conclusion.

This is an example of this new technology. Indeed, augmented reality cannot fully substitute for the real world. Nevertheless, it embraces it by widening the divide between the physical and virtual worlds (Chang 2016). The AR is a technology that enables the users to deliver immersive environments by enriching the physical world with technological components, rather than a fully simulated and artificial environment (Lastname et al. 2019). According to Azuma (1997) the term “augmented reality” refers to the fusion of a direct or indirect view of the physical world with digital objects in real-time to construct a mixed reality.

Face-to-face teaching has become a regular form of school, which is established and communicated by teachers. In addition, the learning content is also focused on static materials, including paper, where static materials cannot dynamically represent any details, like movement or movement. However, teachers and scholars are particularly committed to developing new and useful methods, such as “mobile augmented reality”, to improve teaching activities. According to Granado et al. (2016), mobile augmented reality is providing people with a new dimension of perception, viewing, listening, and communication with the real world in an unprecedented way. In addition, mobile AR is defined as the projection of virtual content onto a real-time camera in the actual environment via a smartphone or tablet, allowing users to interact with the content (Laine 2018). The purpose of this study is to lay the groundwork for implementing mobile augmented reality in education. Furthermore, it is anticipated that the development of this article will include some good instances of augmented reality consumer studies that will aid existing augmented reality researchers in their analysis.

## 2 Past Review

The aim of previous reviewers has been to research, analyze, and identify current work in the Augmented Reality field of education (AR). In the future, augmented reality has a lot of potential to be successful. A great deal of research has been done on augmented reality technology, like cell phone-based augmented reality and augmented reality in education. Related terms, mechanisms, and sample types of analysis are described in this article. There have been a few comprehensive analyses, content research, and meta-analysis articles relevant to AR applications in education in recent years. These studies are relevant to identifying trends in using augmented

reality in the field of education. This current analysis aims to find systemic review papers in education. There were 103 document hits from the keyword search of systematic AND review AND augmented AND reality AND education, of which 4 were selected for different fields in education. Scopus was used to carry out a systematic literature review in education.

Figure 1 shows the publication trend of reviews from 2015 to 2020, which demonstrated an increase in the number of articles published each year. Meanwhile, Fig. 2 shows the documents that have been published by 10 countries. The United Kingdom published 16 documents, which is the highest number of papers. Next, the United States published 15 documents, followed by 10 documents published by Germany. Meanwhile, six articles were written by Italy and Malaysia, whereas Greece published five articles. Figure 3 illustrates the pie chart of documents by

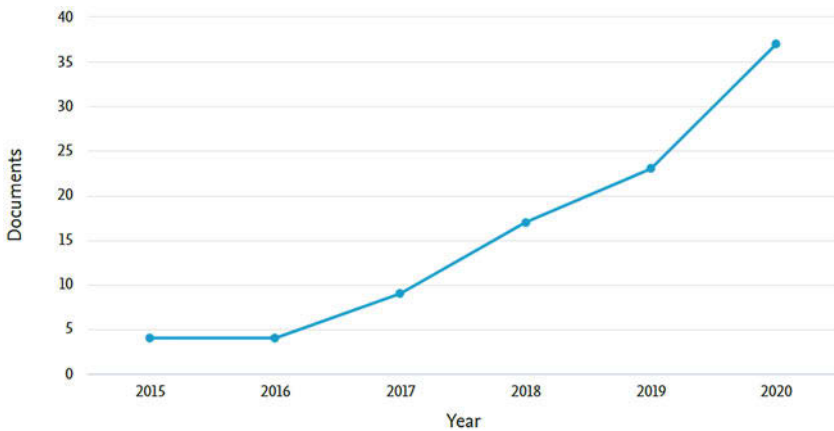


Fig. 1 Shows the publication trend of reviews from 2015 to 2020, which demonstrated an increase in the number of articles published each year

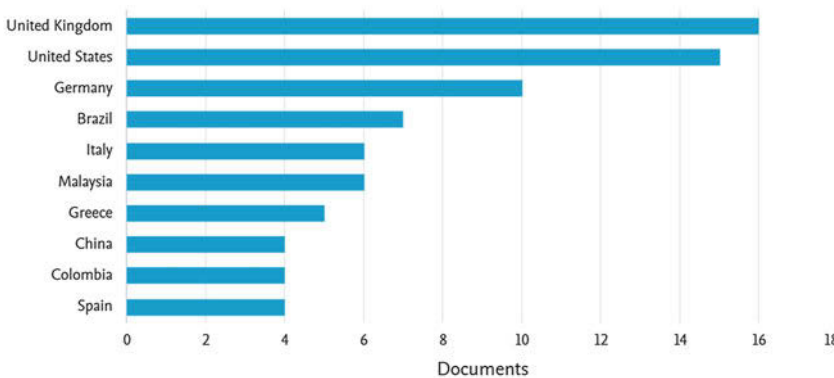
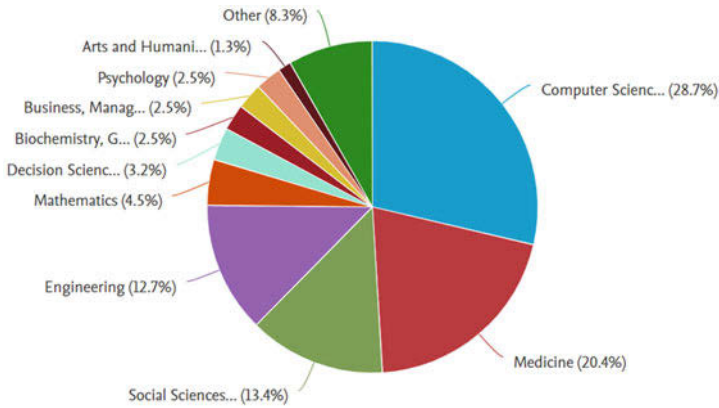


Fig. 2 Documents that have been published by 10 countries



**Fig. 3** Illustrates the pie chart of documents by subject

subject. The remaining three countries published four documents each. This pie chart shows that computer science has the highest percentage with 28.7%. The second area was 20.4%, represented by medicine.

Four educators from various fields were chosen to discuss the paper in greater depth. First, the systematic review paper (Laine 2018) discussed mobile augmented reality games in education. The author mentioned that it is necessary to conduct a comprehensive analysis of all research related to educational mobile AR games (EMARG). The researcher used a three-stage filtering and analysis process to conduct a literature review. The researcher looked for Google Scholar and Scopus articles from the year 2015–2020 and provided new information from a multidisciplinary perspective at the end of the article. A systematic review of mathematical trends for the period between 2015–2019 was also explained (Ahmad and Junaini 2020). Using the leading indexed Scopus database, this study found only 19 papers that followed the PRISMA guidelines. A study on these research focuses revealed eight themes to illustrate trends in AR app development tools, research contributions, benefits of AR for math, learning problems, testing methods, and math subtopics. Besides, the study by Sirakaya and Alsancak Sirakaya (2020) systematically investigated studies in which augmented reality (AR) has been used to support science, technology, engineering and mathematics (STEM) education. In general, the research was conducted in classrooms using marker-based AR applications. The study aimed to identify the current situation, benefits, and drawbacks of STEM-related to AR. Meanwhile, the study by Tang et al. (2019) was aimed at helping to direct potential studies. The study built an analytical model for ARAs and carried out a comprehensive analysis to observe the actual condition of ARAs. The theoretical model developed from the study can help standardize AR measurement approaches through analysis and identify the role of AR technology in medical education. Table 1 provides comparisons among the reviews.

**Table 1** Comparison with existing article

|                    | (Laine 2018) | (Ahmad and Junaini 2020) | (Sirakaya and Alsancak Sirakaya 2020) | (Tang et al. 2019) |
|--------------------|--------------|--------------------------|---------------------------------------|--------------------|
| Review Methodology | –            | PRISMA                   | PRISMA                                | PRISMA             |
| Publication Year   | 2018         | 2020                     | 2020                                  | 2019               |
| Field              | –            | Mathematic               | STEM                                  | Medical            |

### 3 Mobile Augmented Reality in Education

#### 3.1 *The Concept of Mobile Augmented Reality in Education*

AR has been used for educational purposes in the first training for Boeing Airlines pilots and Air Force pilots (Voronina et al. 2019). Augmented reality offers a great promise, but “the question is whether it is useful to learn about it”. “The problem is figuring out how to best utilize its potential” (Kaufmann 2012). Augmented reality (AR) is now used across all educational levels, including classrooms. One of the most widely used multimedia technologies in today’s classrooms is augmented reality (AR) (Awang et al. 2019). The term augmented reality refers to a virtual environment technology that enables a device to superimpose virtual images on real-world objects (Shamsuddin et al. 2018).

The effects of mobile technology on classrooms have been extensively studied, while mobile technology combined with augmented reality technology has become ubiquitous across the world with diverse users including students at all levels of education (Awang et al. 2019). Augmented reality is a new experience for learners, that can encourage them to participate in digital content while still interacting with the real environment (Nanthanasit and Wongta 2018). In teaching methods, AR, is applied to several different fields, such as English Learning (Aladin et al. 2020; Pereira et al. 2020; Safar et al. 2017) Medical education (Gouveia et al. 2021; Küçük et al. 2016), Sciences (Midak et al. 2020; Tresnawati et al. 2019), History (Kysela and Štorková 2015; Syahputra et al. 2020) as well as in Mathematics (Kaufmann 2002; Purnama et al. 2014) and Islamic Teaching (Ahmad et al. 2019; Pradibta et al. 2019; Suhaimi et al. 2020).

Another application of AR in educational settings is the provision of 3D materials and the ability for teachers to exhibit content (Wu et al. 2013). AR also provides opportunities in the learning phases for certain issues to be solved. For some learners, bringing stuff into context is challenging (Cai et al. 2014). In this chapter, the analysis of current literature on the implementation of AR is discussed. The goal of this research is to look at existing augmented reality applications in various fields of education. Based on Title-Abstract-Keyword’s quest, 1931 document hits were identified from the keyword search: augmented AND reality AND in AND education AND application using Scopus to provide examples and explain ways to use AR in

**Table 2** Meta-analysis of research conducted on AR in different fields of education

| Author/s                 | Field                                   | Purpose of Study   |
|--------------------------|---|--|
| (Gouveia et al. 2021)    | Medical Education (Breast Cancer)       | To accelerate exploratory research in breast cancer imaging  |
| (Syahputra et al. 2020)  | History (Historical Buildings in Medan) | To provide information about historical buildings in Medan   |
| (Suhaimi et al. 2020)    | Islamic (Jawi Character)                | To provide students with early exposure and interest in studying Jawi and self-learning  |
| (Tresnawati et al. 2019) | Science (Solar System)                  | To help people understand the different types of planets   |
| (Safar et al. 2017)      | English (English Alphabet)              | Improve the effectiveness of augmented reality technology in teaching English letters for kindergarten children and develop teaching methods |
| (Kaufmann 2002)          | Mathematics and Geometry                | Using 3D Geometric principles to teach geometry  |

various areas of education. Table 2 describes a meta-analysis of research conducted on AR in various fields.

In Table 2, it can be seen that AR technology has been used in teaching and learning in a variety of subjects. The majority of research studies concluded that students who use augmented reality for education have a positive outcome. So, in the end, more research is required on the usefulness of AR in education, as it has great benefits for students and teachers.

### 3.2 *Benefits of Augmented Reality in Education*

Augmented reality has emerged as one of the most important educational developments in recent years. AR is a modern technology that, according to experts, has the potential to drastically change education. AR has a lot of benefits, including the unique ability to combine the physical world with a digital aspect, providing users with knowledge of realistic yet managed behaviour (Mahmud et al. 2019). AR is not a conventional methodology applied to traditional education methods but is a new technique for enhancing the learning of three-dimensional shapes. Also, according to Cerqueira and Kirner (2016) there are many benefits to using AR methods for educational purposes. For example, since AR can perform comprehensive simulations and object animations, AR can reduce misunderstandings caused by students failing to envision topics such as chemical bonds. Through different shapes and meanings, AR can display concepts and ideas. For instance, view shots that engage students in learning the subjects better (Cerqueira and Kirner 2016). Table 3 summaries the



**Table 3** Benefits of using AR in education

| Authors                     | Benefit of AR   |
|-----------------------------|---|
| (Pellas and Kazanidis 2019) | Provides interactive learning experience and better performance   |
| (Billinghurst 2016)         | Enables students to display and communicate seamlessly through spatial content  |
| (Singhal et al. 2012)       | Supports smooth connectivity with physical and simulated experiences and allows the use metaphors for object management with a tangible GUI |
| (Kiryakova et al. 2018)     | Allows students to learn topics better when studying various topic  |
| (Diegmann et al. 2015)      | Enables students to learn by themselves, discover and accept new knowledge  |

benefits of augmented reality in education from the literature.

The educational benefits of augmented reality technology (as shown in Table 3) indicate that it has great potential for integration into teaching, especially in subjects that require student visualization.

## 4 Mobile AR Technique

AR techniques for learning can be categorized into two major categories: those that use markers and without maker. Image-based (markers) augmented reality and location-based (marker-less) augmented reality are two approaches to realizing augmented reality technology, according to Cheng and Tsai (2013), A marker-based systems needs markers to register 3D objects in the real-world image, while s marker-less system uses location data from mobile devices (Geethanjali and Muralidhara 2021). According to this, the marker-based system allows the positioning of 2D patterns of special patterns and shapes on real objects where the augmentations are superimposed. This involves putting flashcards next to the object of application with predefined pictures or posters. A marker-less picture is gathered from the Internet and displayed in every given place in marker-less augmented reality (can be gathered using GPS). A marker to show the content is not needed for displaying output (Fleck and Hachet 2015). Table 4 shows the comparison between maker-based and marker-less AR.

These are many studies conducted using marker-based (Aladin et al. 2020; Pereira et al. 2020; Gouveia et al. 2021; Küçük et al. 2016; Midak et al. 2020; Tresnawati et al. 2019; Kaufmann 2002; Ahmad et al. 2019; Pradibta et al. 2019; Suhaimi et al. 2020; Arifitama et al. 2019; Romli et al. 2020; Sun and Chen 2020; Tomi 2013) and marker-less systems (Kysela and Štorková 2015; Syahputra et al. 2020; Al-Jabi and Sammaneh 2018; Kolivand et al. 2019; Atzigen et al. 2021). Nonetheless, the majority of researchers used maker-based techniques to develop Mobile Augmented Reality.

**Table 4** Comparison of marker-based and marker-less AR technique

| AR Techniques        |                               | MARKER-BASED          | MARKER-LESS                |
|----------------------|-------------------------------|-----------------------|----------------------------|
| Category             |                               |                       |                            |
| Hardware Support     | Desktop                       | Support               | Not Support                |
|                      | Mobile Phone                  | Support               | Support                    |
| Method               | Relative Position             | It depends on Markers | It depends on localization |
|                      | AR Software Development Tools | Mostly used           | Rarely applied             |
| Accuracy of location | High/Low                      | High                  | Low                        |

## 5 Mobile AR Software Development Kits (SDK)

In augmented reality applications, there are various SDKs for making MAR and other important things. A software development kit (SDK) or framework for AR application development includes a coding environment in which users can use the advantages of augmented reality and resources to create functions that will make up the software application. The development of an AR framework for the SDK specification will include certain project functions. Researchers need to choose the right SDK according to the criteria of the project. The Augmented Reality SDK assists with a variety of components in the AR application: AR Recognition, AR tracking and AR rendering and also Abe, which are classified as follows: marker-less, marker-based, and natural feature monitoring (Amin and Govilkar 2015).

Researchers must use a particular SDK (SDK) to integrate AR into a mobile device. All these SDKs have their requirements. ARCore: The ARCore software is used to create augmented reality (AR) experiences for Google. With APIs from the ARCore, a phone can identify its surroundings, learn about the environment, and communicate with digital content. ARCore requires three main capabilities to incorporate interactive information into the physical environment, such as tracking, environmental understanding and light estimation. ARCode only recognizes 2D Markers (ARCode 2020). The first article in the Scopus database that used ARCode that by Sittiyuno and Chaipah (2019), which developed an application that uses augmented reality (AR) to inspire and assist learners with programming.

ARKit ARKit is Apple’s augmented reality technology exclusive to iOS and enables the creation of augmented reality apps for iPhones and iPads. All iOS developers with an Ap-P Developer Account are entitled to receive the Apple ARKit SDK for free. ARKit combines object detection on the computer, camera scene capture, advanced stage processing, and display conveniences to simplify the process of creating an augmented reality experience. ARKit can search and recognize 3D static objects and even generate simulated metal reflections of actual objects. Some studies that used ARKits include that by Ismail et al. (2020), which developed mobile-based augmented reality for flexible human height measurement utilizing contact and motion gesture engagement, and also by Kharroubi et al. (2020), which employed

**Table 5** Comparison of SDK

| AR SDK           |             | VUFORIA | ARKit | ARCode |
|------------------|-------------|---------|-------|--------|
| Type             |             |         |       |        |
| Licenses         | Open Source | ×       | ×     | ×      |
|                  | Free        | ✓       | ✓     | ✓      |
|                  | Commercial  | ✓       | ✓     | ×      |
| Platform Support | Ios         | ✓       | ✓     | ✓      |
|                  | Android     | ✓       | ×     | ✓      |
| Image Marker     | 2D          | ✓       | ✓     | ✓      |
|                  | 3D          | ✓       | ✓     | ×      |

ARKits to develop mobile applications for massive 3D point clouds and semantics. Besides (Dass et al. 2018) have created a MAR for learning programming.

Vuforia: The Vuforia Engine is the most commonly used AR development platform. To build AR applications that communicate with objects and the real world, developers can quickly apply advanced computer vision functions to Android, iOS, and UWP applications. It has three major components: objects, environment, and platform support. Vuforia provides a web-based environment in which users can build and maintain their mark-up and obtain licenses suitable for checking and publishing their applications. According to the study by Pradibta et al. (2019), this platform has been used to develop mobile applications for pre-school students reading and writing letters to Hijaiyah. Table 5 illustrates the comparison of among these software development kits.

The table concludes that each AR SDK has its attributes that can help AR developers to identify, present and manage their applications.

## 6 User Interface Design

AR can be used to generate unique collaborative experiences (Dünser and Hornecker 2007; Lukosch et al. 2015; Seichter et al. 2013) but AR technology alone cannot create this unique collaborative experience. It is generated by possible functions in the application design (Spector et al. 2014). According to research done by Seichter et al. (2013), design for children must fit three listed features: touch-screen GUI, FM Radio, and more memory. Colorful colors should be used in interface design for children, and icons should be designed in a cartoon style to display more information. By installing a high-fidelity prototype, the evaluators of the phone managed to sample the degree of interactivity that could be generated by children and adolescents in their age groups.

## 7 Future of AR in Education

How can Augmented Reality be applied to future education? Augmented Reality technology has the capabilities that can make classes more interactive and easily recognized. Teachers recognize that it is essential to provide students with opportunities to apply learning and their knowledge in ways beyond memorization. Augmented Reality applications require users to use smartphones to run. Cell phones and computers have a negative impact on schoolchildren's health that increases with the length and frequency of their use. Due to the disadvantages of mobile phones for students, AR glasses are the future of augmented reality. By 2023, AR glasses will take the place of smartphones. Many huge companies in IT, such as Microsoft, Facebook and Google, have revealed the use of AR Smart Glasses for the potential movement of mass media technology. Wearable augmented reality is gaining as it offers handy features including AR, like smartphone apps that help to expand people's knowledge while not requiring the use of hands (Matsuhashi et al. 2019).

## 8 Conclusion

This paper has provided an overview of MAR research that are relevant to education. Mobile Augmented Reality is a fast-growing commercial application industry with development anticipated in other markets. Educational practices are increasingly being implemented. Thus, it can be assumed that AR could prove to be a powerful tool if used correctly, and it is interesting to see how this research area will progress with other academics.

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# Student Perception on Knowledge Management: Effectiveness of Online Learning During the Pandemic



Sk Mamun Mostofa , Md. Uzzal Hossain , Roslina Othman ,  
Khandakar Kamrul Hasan , and Muhammad Khalilur Rahman 

**Abstract** The study has aimed to investigate the students' perceptions of Knowledge Management (KM) and their efficiency throughout the pandemic in online learning. Data was collected from both undergraduate and post-graduate students of University using structured questionnaires. Statistical Package for the Social Sciences (SPSS) software 23.0 version was used to analyze the students' perceptions of KM and its effectiveness in online learning. The findings revealed that online learning perspectives in gender and age varied across students. The bad connection to the internet and budgetary challenges are causing students to not join the online class during the pandemic. The majority of the students are not yet ready in synchronous delivery mode, and thus it is recommended that the University authority can offer an alternative means of teaching to maintain academic excellence in the uncertainties of this pandemic.

**Keywords** Online learning · Knowledge management · Students' perception · Pandemic · Bangladesh

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S. M. Mostofa

Department of Library and Information Science, KICT, International Islamic University Malaysia, Kuala Lumpur, Malaysia  
e-mail: [mostofa@du.ac.bd](mailto:mostofa@du.ac.bd)

Department of Information Science and Library Management, University of Dhaka, Dhaka, Bangladesh

Md. U. Hossain

Department of Information Science and Library Management, University of Rajshahi, Rajshahi, Bangladesh

R. Othman

Department of Library and Information Science, KICT, International Islamic University Malaysia, Gombak, Kuala Lumpur, Malaysia

K. K. Hasan

Department of Business Management, Tripura University (A Central University), Agartala, India

M. K. Rahman (✉)

Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Pengkalan Chepa, Malaysia  
e-mail: [khalilur.l@umk.edu.my](mailto:khalilur.l@umk.edu.my)

## 1 Introduction

Bangladesh's government and the international community take the necessary procedures to closely monitor COVID-19, which was found in Wuhan, South China, in December 2019, in collaboration with the World Health Organization (WHO). The virus is rapidly spreading worldwide (Agung et al. 2020). Bangladesh's government emphasized societal separation seven days after the WHO declared COVID-19 a pandemic on 15 March 2020. Additionally, the government encouraged residents to work, study, and practice religion at home. A pandemic is a disease that concurrently spreads throughout numerous countries (Roxby 2020). Numerous businesses, including education, have been impacted. Bangladesh's Ministry of Education issued a circular letter directing colleges and schools, including higher education, to temporarily discontinue traditional education (Daily Prothom-alo 2020). On 18th March 2020, all educational institutions in Bangladesh proclaimed a sincere commitment to COVID-19 prevention among students (Anwar 2020).

E-learning is described as IT's use to improve education quality (Howlett et al. 2009). Online education is currently extensively employed in undergraduate training, not just as an approach but in conjunction with the traditional teacher-led approach (Blissitt 2016; Sadeghi et al. 2014). E-learning success relies on numerous elements, including accessibility, proper methodologies, course contents and evaluation criteria. Like any educational approach, e-learning presents both students and teachers with its advantages and inconveniences. Other benefits noteworthy include improved simplicity of use, access to resources irrespective of location and time, cost reductions and air pollution, for example, carbon dioxide emissions due to transportation reductions and the epidemiological advantage of Electronic Education during COVID 19 (Cook and Triola 2014; Salem 2015; Chumley-Jones et al. 2002). Online classes can have difficulties, including Internet access problems, bad internet connectivity and inadequate digital abilities of responders. Some advantages, such as flexible time, may potentially be limited, especially for self-disciplined students (Niebuhr et al. 2014; Dyrbye et al. 2009; Bediang et al. 2013; Attardi and Rogers 2015). In this era of virtual education, it is even more critical to learn about teachers' perspectives and to ascertain students' perceptions about this new teaching style, including their level of adaptation and modification, if they wish to make the same recommendation or reject it entirely (Bali and Liu 2018). This study aims to study students' perspectives of knowledge management and their efficacy in online learning while the epidemic among students in a public university in Bangladesh is undetermined.

## 2 Literature Review

Research into the view of students and their expectations of e-learning has recently increased (Armstrong 2011; Biswas, et al. 2020). Various surveys show that most

students who are enrolled in online courses are satisfied with their studies. Studies show that a number of factors influence student perceptions (Shrestha et al. 2019; Salloum 2019; Pérez-Pérez et al. 2020). The fundamental indicators of student technology acceptance are age, gender, prior understanding of computer literacy and individual learning styles. There is significant literature on “technology acceptability” hypotheses for students’ perceptions (Al Kurdi et al. 2020).

The goals of KM are stated in the literature from diverse perspectives. It is a general understanding that KM is intimately associated with the company’s business excellence, competitiveness and innovation abilities, and the efficiency/efficiency of processes. KM emphasizes the effective use of all intangible resources, such as individual knowledge assets, experience, databases, expertise, and other resources, to meet these objectives. KM also has a strong emphasis on the conduct of relevant research in the context of the Corporate strategy (Bhatt 2001; Nerdrum and Erikson 2001; UitBeijerse 1999; Yilmaz 2012). Suppose the significant aim of KM is to achieve business excellence. In that case, it may be separated into the following knowledge-driven objectives: Transformation of personal knowledge into business: It entails the transformation of information into organizational norms, standards, structures and technology, which is merely in staff brains. Creating transparency of knowledge, the company should be able to determine its existing capabilities and intend to make them in the future. The organization should assist its employees in developing the necessary skills for this environment. Information-based operations facilitation: It has a significant role in data and information management which is the fundamental knowledge component. The proper treatment of actual data allows accurate understanding and effective decision making by transforming data into accurate information. Therefore, knowledge and decisions based on existing facts and data are developed.

Nowadays, systems in the field of KM concentrate primarily on acquiring, storing, collecting and maintaining (e.g. updating), whereas Online learning platforms are generally monolithic and cannot support and distribute information adequately (Mihalca et al. 2008). However, as already said, knowledge is a human building, and knowledge generation requires individuals to understand and integrate essential information (Kendal and Creen 2007). Students receive information and processing experience. In this process, the student’s knowledge base includes new information and experience. In addition, the learner sees, selects and integrates new information and experiences into the present foundation of information in gaining information and processing experience, and therefore transforms it. “Learner also selects and builds information, which will be helpful to him/her and use it in order to lead and determine his/her strategy of constant learning.” In addition, “The learning process can be understood as the process of learning transformed into an individual interactive process between the person and the environment in which the subjective reality of the learner is actively generated.’ Thus, new pedagogical methods are needed if computer technology supports learning activities that generate and produce knowledge. On the other side, information distribution and acquisition focus on technology-oriented development (Mihalca et al. 2008).

## 2.1 Critical Elements of Effective Online Learning

Effective learning and online learning should be combined qualities to promote online learning. Combined with the unique online environment, traditional learning features will help distinguish between outstanding learning (that is, sharing knowledge) and medium or ineffective learning (Eisinger 2000). Including the following five key features of online learning:

- i. **Interactivity—interactive online learning:** Both students and knowledge holders have chances to expand upon information transmitted in online. Opportunities include in-depth talks, chat areas and exercises that enable learners to interact with each other and respond to the subject. Especially, students and teachers in the virtual learning environment should contact the content expert or others. The email discussions boards can be used for interaction support, groupware systems like Lotus Notes, etc.
- ii. **Repetition and practice:** Repetition and practical practice should be included in online learning. Therefore, the classes should involve students to analyze, select, and use data in their daily lives and challenge them to do so. The content should apply to the reference framework of the learner (i.e. practical and comprehensible content for the user). Case studies, simulations and “what you do” activities help students to understand the topics and find ways of employing new information creativity in their life. The internet is a great resource for building an exercise residence.
- iii. **Presenting styles:** Online studies should offer a range of forms for presentations. The most convenient courses give many approaches to assimilate the material for the students. Written content is good, but more students understand concepts that add to text with illustrations. The wealth of display possibilities contributes to the video, audio and other multimedia options within an online context. Teachers can ask in an online classroom whether different delivery techniques are available or favored by members of the learning team regarding alternate means of presenting the subject.
- iv. **Content:** Content for online learning should be relevant and hands-on. When adults are directly connected to practical concerns, ideas, case studies, research and information, they will learn better. It just does not make learning online successful by putting content online. Learners need to integrate all the knowledge supplied in the learning environment to make sense of and value their lives. Intranets allow employees access to the content of learning activities faced by an organization.
- v. **Authentic and timeless:** Online learning should be precise and appropriate for information to be shared. Teachers should follow procedures to ensure that the content supplied is appropriate to the requirements for learning (often through direct interaction with the learners and through evaluations such as questionnaires). To maintain accuracy and timeliness, the course content should be evaluated often.

Ultimately, online learning should try to communicate. Online learning can allow insights and expertise to be gained and disseminated using audio, video and textual media. The bulk of online learning involves content that provides clear information, training or knowledge needed to increase employees' performance and improve products and services.

### 3 Methodology

This study was conducted from November 2020 to February 2021 at University of Rajshahi (RU) in Bangladesh. RU is the country's second-largest and oldest university, which opened its doors for the students in 1953 and this university continues to show a strong character in fulfilling the higher education needs of a large portion of the population in Bangladesh. A survey questionnaire for data collection was created and used from undergraduate and Master levels in the Department of Information Science and Library Management.

There were three components of the survey questionnaire. The first section addressed demographic questions, as well as general questions concerning the students such as names of the respondents, sex, age and yes/no questions etc. The second part raised problems concerning online learning perspectives. The last portion questioned about Knowledge Management (acquisition, sharing and application of knowledge) opinions of students on pandemic circumstances. The points beneath each of these beliefs were measured by a five-point Likert scale, from strongly disagree (1) to strongly agree (5). As a surveying technique, simple random sampling was utilized.

The data collection technique was done by using Google forms and the links of the questionnaires were submitted to online platforms such as Facebook, and WhatsApp groups of the respondents. A total of 350 questionnaires were distributed to undergraduate and Master level students, and 224 questionnaires were found valid for data analysis, whereas the response rate of 64%. To verify the reliability of the questionnaire items, Cronbach's alpha score was acquired. The outcome was a 0.903 alpha score, which points to the dependable alpha score on the questionnaire (Table 2). IBM SPSS® 23.0 version was used to analyse the data.

The Mann–Whitney and Kruskal–Wallis tests were run separately to investigate the significant differences in the perspective of students of online learning regarding student demographics. The null hypothesis was tested to see the connection between the variables. If the probability of the results is less than the anticipated level ( $p < 0.05$ ), the null hypothesis shall be denied. Alternatively, the hypothesis is adopted to conclude that the groups do not differ. The following hypotheses have been tested;

**H1:** There is no significant difference between gender and respondents' perception of online learning.

**H2:** There is no significant difference between the frequency of internet use and experiences of computer use with age category.

## 4 Results and Discussion

### 4.1 Reliability and Validity Analysis

To ensure the validity of the constructs, the measurement items and variables were developed from prior studies. The variables, coding and items are listed in Table 1.

The reliability of the questionnaire has been tested by using the IBM SPSS software 23.0 version. Cronbach's alpha test was found 0.903, which can be called as reliable as  $\alpha > 0.5$  is good to run the next series of tests. Table 2 shows Bartlett's test of Sphericity which has been used along with KMO statistics. Here, the KMO value is 0.836, which is between 0.5 and 1.0 and the result is excellent because the KMO value is close to 1. The approximate chi-square statistic is 3613.191 with 300 degrees of freedom, which is significant ( $p < 0.05$ ). The value of the KMO statistic (0.836) is also large ( $>0.5$ ). Thus, factor analysis may be considered as an appropriate technique for analyzing these data.

Table 3 shows the rotated component matrix (Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization) with factor loadings along with their communality that is extracted and considered relevant to the factor construction. The variables having a factor loading of above 0.7 and highly significant and the communality value above 0.5 reveals that the effect of the variable is more than the other variables and the Cronbach's alpha (0.836) for these factors show good reliability values ( $\alpha > 0.5$ ).

### 4.2 Demographic Information

The survey accumulated a total of 224 valid responses. Out of 224 respondents, 127 (56.7%) were male and 97 (43.3%) were female. The data in Table 4 show that more than half of the respondents (130, 58%) were from the age group of 17–21 years, followed (91, 40.7%) were from the age groups 22–24 years. The smallest group (3, 1.3%) of researchers was aged between 25–29 years. The students from the 1<sup>st</sup> year honours constitute the largest group (95, 42.4%). Second largest group from the 4<sup>th</sup> year honours students (47, 21.0%), followed (31, 13.8%) and (23, 10.3%). Among the respondents (28, 12.5%) were masters students. Table 4 also shows that (64, 27.7%) never used a computer before. More than half of the respondents (127, 56.7%) have experience of 1–5 years followed by (17, 7.6%) and (16, 7.1%) of 6–10 years and more than ten years of computer use. In total, 160 (71.4%) out of 224 are familiar with KM.

**Table 1** Variables and items included in the questionnaire

| Variables                     | Coding | Items  |
|-------------------------------|--------|--|
| Perception of Online Learning | POL 1  | Online learning is helpful for deeper understanding of the course content                                      |
|                               | POL 2  | I am familiar with online studying techniques and easily manage my online learning process                     |
|                               | POL 3  | Online learning improves the quality of learning material compared to face-to-face lectures and seminars       |
|                               | POL 4  | I think that the lack of teachers' support to the learners deeply affects the effectiveness of online learning |
|                               | POL 5  | I think online learning requires a lot of time to prepare to be effective                                      |
|                               | POL6   | I would rather listen to a face-to-face lecture or seminar than attend online classes                          |
|                               | POL7   | Online teaching techniques are not adequate and sometimes I lack face-to-face feedback                         |
|                               | POL8   | I can easily understand and process information gained during online learning                                  |
|                               | POL 9  | I can cope with the structure of online classes and discussion   |
| Knowledge Acquisition         | KA1    | Facilitates the process of acquiring knowledge   |
|                               | KA2    | Allows me to generate new knowledge based on my existing knowledge   |
|                               | KA3    | Enables me to acquire knowledge through various resources  |
|                               | KA4    | Assists me to acquire the knowledge that suits my needs  |
|                               | KA5    | Assist our university for better knowledge acquisition   |
| Knowledge Sharing             | KS1    | Facilitates the process of knowledge sharing in anytime and anywhere   |
|                               | KS2    | Supports discussions with my instructor and classmates   |
|                               | KS3    | Knowledge sharing strengthens the relationships with my instructor and classmates                              |
|                               | KS4    | Enables me to share different types of resources with my class instructor and classmates                       |
|                               | KS5    | Facilitates collaboration among the students   |
| Knowledge Application         | KA1    | Enhance my efficiency  |
|                               | KA2    | Accomplish tasks more quickly  |
|                               | KA3    | Improve my academic work   |
|                               | KA4    | Interaction with e-learning systems is clear and understandable  |

(continued)

**Table 1** (continued)

| Variables | Coding | Items                                 |
|-----------|--------|---------------------------------------|
|           | KA5    | Easy for me to manage knowledge       |
|           | KA6    | Convenient and user-friendly          |
|           | KA7    | E-learning will enhance my efficiency |

**Table 2** KMO and Bartlett’s test

|   |                    |          |
|---|--------------------|----------|
| Kaiser–Meyer–Olkin Measure of Sampling Adequacy |                    | 0.836    |
| Bartlett’s Test of Sphericity                   | Approx. Chi-Square | 3613.191 |
|   | Df                 | 300      |
|   | Sig                | 0.000    |

### 4.3 *Electronic Devices Used for Education During Pandemic*

Table 5 indicated that out of 224 respondent’s largest group of students, i.e. 197 (87.9%) used smartphones to access the internet for education. Only (6, 2.6%) used shared devices and rest the (21, 9.5%) used laptops to access the internet for education.

### 4.4 *Perception of Online Learning*

Most respondents were aware about online learning and they also knew the online studying techniques (Mean = 3.08) though they also replied that online teaching techniques are not adequate (Mean = 3.56) and lack of teachers’ support to the learners (Mean = 3.17). Participants were asked about their perceptions of online learning and its impact on their education in pandemic on a 5-point scale (Table 6).

### 4.5 *Knowledge Acquisition*

Table 7 shows that the highest mean score is 3.67 on a five-point Likert scale for “acquire knowledge through various resources” and the lowest mean score is 3.43 for “University for better knowledge acquisition”. The second highest mean score is 3.56 for “Allows me to generate a new knowledge” followed by 3.53 for “E-learning system facilitates the process” and 3.49 for “That suits my needs”.



**Table 3** Rotated component matrix

| Item   | Components |   |       |       |   |   | Communalities |                    |
|--|------------|---|-------|-------|---|---|---------------|--------------------|
|  | 1          | 2 | 3     | 4     | 5 | 6 | Extraction    |                    |
| Facilitates the process of acquiring knowledge   | 0.735      |   |       |       |   |   | 0.726         | Highly significant |
| Allows me to generate new knowledge  | 0.805      |   |       |       |   |   | 0.764         | Highly significant |
| Acquire knowledge through various resources  | 0.783      |   |       |       |   |   | 0.721         | Highly significant |
| Assists me to acquire the knowledge that suits my needs                                  | 0.692      |   |       |       |   |   | 0.655         | Significant        |
| University for better knowledge acquisition  | 0.716      |   |       |       |   |   | 0.637         | Significant        |
| Supports discussions with instructor and classmates                                      |            |   |       | 0.629 |   |   | 0.623         | Significant        |
| Sharing knowledge strengthens the relationships with instructor and classmates           |            |   |       | 0.812 |   |   | 0.766         | Highly significant |
| Enables me to share different types of resources with my class instructor and classmates |            |   |       | 0.653 |   |   | 0.745         | Highly significant |
| Facilitates collaboration among the students   |            |   |       | 0.682 |   |   | 0.686         | Highly significant |
| E-learning system will enhance my efficiency   |            |   | 0.917 |       |   |   | 0.848         | Highly significant |

(continued)

**Table 3** (continued)

|  | Components |       |        |  |       | Communalities |       |                    |
|--|------------|-------|--------|--|-------|---------------|-------|--------------------|
| Enable me to accomplish tasks more quickly                     |            |       |        |  |       | 0.943         | 0.962 | Highly significant |
| Improve my academic work                                       |            |       | 0.947  |  |       |               | 0.935 | Highly significant |
| Clear and understandable                                       |            |       | 0.961  |  |       |               | 0.939 | Highly significant |
| Easy for me to manage knowledge                                |            |       | -0.735 |  |       |               | 0.935 | Highly significant |
| Online learning is helpful for deeper understanding            |            |       |        |  |       |               | 0.629 | Significant        |
| I am familiar to online studying techniques                    |            | 0.695 |        |  |       |               | 0.508 | Significant        |
| Requires a lot of time to prepare to be effective              |            |       |        |  | 0.749 |               | 0.641 | Significant        |
| I would rather listen to a face-to-face lecture                |            |       |        |  | 0.772 |               | 0.678 | Significant        |
| Techniques are not adequate                                    |            |       |        |  | 0.754 |               | 0.639 | Significant        |
| Easily understand and process information gained               |            | 0.725 |        |  |       |               | 0.559 | Significant        |
| Can find the connections between the ideas presented virtually |            | 0.670 |        |  |       |               | 0.649 | Significant        |
| I can cope with the structure of online classes and discussion |            | 0.738 |        |  |       |               | 0.630 | Significant        |

**Table 4** Demographic profile of the respondent

| Demographic/personal characteristics | N   | %     |
|--------------------------------------|-----|-------|
| <i>Gender</i>                        |     |       |
| Male                                 | 127 | 56.7  |
| Female                               | 97  | 43.3  |
| <i>Age group</i>                     |     |       |
| 17–21 years                          | 130 | 58.0  |
| 22–24 years                          | 91  | 40.7  |
| 25–29 years                          | 3   | 1.3   |
| <i>Study level</i>                   |     |       |
| 1 <sup>st</sup> year                 | 95  | 42.4  |
| 2 <sup>nd</sup> year                 | 31  | 13.8  |
| 3 <sup>rd</sup> year                 | 23  | 10.3  |
| 4 <sup>th</sup> year                 | 47  | 21.0  |
| Masters                              | 28  | 12.5  |
| <i>Frequency of computer use</i>     |     |       |
| Never used the computer before       | 64  | 28.6  |
| 1–5 years                            | 127 | 56.7  |
| 6–10 years                           | 17  | 7.6   |
| More than 10 years                   | 16  | 7.1   |
| <i>Familiar with KM</i>              |     |       |
| Yes                                  | 160 | 71.4% |
| No                                   | 64  | 28.6% |

**Table 5** Electronic devices used for education during pandemic

| How do you access internet for education? | N   | %    |
|---|-----|------|
| Smart phone                               | 197 | 87.9 |
| Laptop                                    | 21  | 9.5  |
| Shared devices                            | 6   | 2.6  |

### 4.6 Knowledge Sharing

Table 8 shows that the highest mean score is 3.71 on a five-point Likert scale for “E-learning system facilitates the process of knowledge sharing” and the lowest mean score is 3.15 for “Sharing my knowledge through e-learning system strengthens the relationships with my instructor and classmates”. The second highest mean score is 3.39 for “E-learning system enables me to share different types of resources with my class instructor and classmates” followed by 3.38 for E-learning system facilitates collaboration among the students” and 3.26 for “E-learning system supports discussions with my instructor and classmates”.

**Table 6** Perception of online learning

| Perception of Online Learning   | Mean (SD)      |
|---|----------------|
| Online learning is helpful for a deeper understanding of the course content                   | 2.73 (1.050)   |
| I am familiar with online studying techniques   | 3.08 (1.068)   |
| Online learning improves the quality of learning material                                     | 2.51(1.104)    |
| Lack of teachers’ support to the learners affects deeply the effectiveness of online learning | 3.17 (1.012)   |
| Requires a lot of time to prepare to be effective   | 3.26 (1.1.074) |
| I would rather listen to a face-to-face lecture   | 3.42 (1.225)   |
| Online teaching techniques are not adequate   | 3.56 (1.154)   |
| I can easily understand and process information gained during online learning                 | 2.71 (1.105)   |
| I can cope with the structure of online classes and discussion                                | 3.04 (1.013)   |

**Table 7** Knowledge acquisition

| Knowledge Acquisition                       | Mean (SD)    |
|---|--------------|
| E-learning facilitates the process          | 3.53 (1.024) |
| Allows me to generate a new knowledge       | 3.56 (0.987) |
| Acquire knowledge through various resources | 3.67(1.100)  |
| That suits my needs                         | 3.49 (0.993) |
| University for better knowledge acquisition | 3.43 (1.162) |

**Table 8** Knowledge sharing

| Knowledge Sharing  | Mean (SD)    |
|--|--------------|
| Facilitates the process of knowledge sharing   | 3.71 (1.068) |
| Supports discussions with my instructor and classmates                                   | 3.26 (1.114) |
| Sharing knowledge strengthens my relationships with my instructor and classmates         | 3.15 (1.076) |
| Enables me to share different types of resources with my class instructor and classmates | 3.39(1.095)  |
| Facilitates collaboration among the students   | 3.38 (1.082) |

### 4.7 Perception of Online Learning by Gender

The Mann–Whitney U test was conducted to identify if there are significant differences between gender and respondents’ perception of online learning. Table 9 demonstrates that there were significant differences among gender concerning statements such as lack of teachers’ support to the learners and I can cope with the structure of online classes and discussion. The test result showed that there was no significant difference between male and female researchers in terms of their perceptions of online learning concerning statements i.e. online learning is helpful for deeper

**Table 9** Perception of online learning by gender

| Perception of Online Learning   | Gender         | Mean Rank | Mann-Whitney U | Wilcoxon W | Z      | Asymp. Sig. (2-tailed) |
|---|----------------|-----------|----------------|------------|--------|------------------------|
| Online learning is helpful for deeper understanding                           | Male(N = 127)  | 113.99    | 5970.000       | 10,723.000 | -0.411 | 0.681                  |
|   | Female(N = 97) | 110.55    |                |            |        |                        |
| I am familiar to online studying techniques                                   | Male(N = 127)  | 112.17    | 6117.000       | 14,245.000 | -0.092 | 0.927                  |
|   | Female(N = 97) | 112.94    |                |            |        |                        |
| Online learning improves the quality of learning material                     | Male(N = 127)  | 114.03    | 5965.500       | 10,718.500 | -0.422 | 0.673                  |
|   | Female(N = 97) | 110.50    |                |            |        |                        |
| Lack of teachers' support to the learners                                     | Male(N = 127)  | 104.35    | 5124.000       | 13,252.000 | -2.263 | 0.024                  |
|   | Female(N = 97) | 123.18    |                |            |        |                        |
| Requires a lot of time to prepare to be effective                             | Male(N = 127)  | 111.03    | 5972.500       | 14,100.500 | -0.414 | 0.679                  |
|   | Female(N = 97) | 114.43    |                |            |        |                        |
| I would rather listen to a face-to-face lecture                               | Male(N = 127)  | 107.34    | 5504.500       | 13,632.500 | -1.427 | 0.154                  |
|   | Female(N = 97) | 119.25    |                |            |        |                        |
| Online teaching techniques are not adequate                                   | Male(N = 127)  | 109.19    | 5739.500       | 13,867.500 | -0.938 | 0.348                  |
|   | Female(N = 97) | 116.83    |                |            |        |                        |
| I can easily understand and process information gained during online learning | Male(N = 127)  | 107.80    | 5563.000       | 13,691.000 | -1.293 | 0.196                  |
|   | Female(N = 97) | 118.65    |                |            |        |                        |
| I can cope with the structure of online classes and discussion                | Male(N = 127)  | 105.09    | 5218.000       | 13,346.000 | -2.045 | 0.041                  |
|   | Female(N = 97) | 122.21    |                |            |        |                        |

**Table 10** Kruskal Wallis test for frequency of using the internet, how long have you been using the computer, familiar with KM and access internet for education by age

| Statements                                 | Age               | Mean Rank | Chi-Square | Df | Asymp. Sig |
|--|-------------------|-----------|------------|----|------------|
| Frequency of using internet                | 17–21 years = 130 | 114.28    | 0.581      | 2  | 0.748      |
|  | 22–24 years = 91  | 110.64    |            |    |            |
|  | 25–29 years = 3   | 92.00     |            |    |            |
| How long have you been using the computer? | 17–21 years = 130 | 107.97    | 3.303      | 2  | 0.192      |
|  | 22–24 years = 91  | 117.49    |            |    |            |
|  | 25–29 years = 3   | 157.50    |            |    |            |
| Familiar with KM                           | 17–21 years = 130 | 101.42    | 15.117     | 2  | 0.001      |
|  | 22–24 years = 91  | 127.27    |            |    |            |
|  | 25–29 years = 3   | 144.50    |            |    |            |
| How do you access internet for education?  | 17–21 years = 130 | 110.42    | 8.333      | 2  | 0.016      |
|  | 22–24 years = 91  | 113.53    |            |    |            |
|  | 25–29 years = 3   | 171.67    |            |    |            |

understanding (0.681), I am familiar with online studying techniques (0.927), Online learning improves the quality of learning material (0.673), requires a lot of time to prepare to be effective (0.679), I can easily understand and process information gained during online learning (0.196) etc.

**4.8 Kruskal Wallis Test for Frequency of Using the Internet, How Long Have You Been Using the Computer, Familiar with KM by Age and Access Internet for Education**

A separate Kruskal–Wallis test (Table 10) found no significant difference among frequency of internet use and experiences of computer use with age category. The Kruskal–Wallis test results between respondents’ familiarity with KM, electronic devices used for access to the internet for education and age groups have significant differences (P value = 0.001;0.016). So, the null hypothesis was rejected.

**4.9 Technical Problems for Joining Online Class**

Most of the participants i.e. 119 (53.1%) replied that an unstable internet connection is a major challenge to join online classes. Where 47(21%) students said that financial problems in their family are another challenge for them to join online classes. 29(12.9%) participants said that frequent electricity failure is another problem. Only 12 (5.4%) participants replied that they don’t have a quiet working place to attend

**Table 11** Technical problems for joining online class

| Technical problems  | N   | %    |
|---|-----|------|
| I do not have adequate IT training  | 6   | 2.7  |
| Frequent electricity failure happens at my place                            | 29  | 12.9 |
| Unstable internet connection  | 119 | 53.1 |
| Financial problem in my household causes challenge for me                   | 47  | 21.0 |
| I don't have my own quiet working place to attend online class              | 12  | 5.4  |
| I don't have a smartphone/laptop/desktop or have technical problems with it | 11  | 4.9  |
| Total   | 224 | 100% |

online class, and 11(4.9%) participants stated that they do not have any smart-phone/laptop/desktop. Rest 6 (2.7%) think that they do not have adequate IT training (Table 11).

## 5 Implications

In this research, the lessons that universities should learn from and convert into management frameworks following extensive online learning systems as a direct result of the COVID-19 epidemic make a significant addition to KM research. There are two primary areas of the paper's essential implications. First, it adds to the current study on the perception and habits of the learning of Information Science and Library Management students on the influence of the internet. Therefore, we have deemed it vital to study critical ideas relating to online teaching and general learning. Our findings offer valuable and beneficial conclusions depending on the level of education, the composition and gender of the student's cohorts, and the kinds of courses. Secondly, the paper explores the link between KM and e-learning for universities, highlighting the role of senior administration and restriction of KM maturity.

## 6 Conclusions, Limitations and Future Study

The social distance required to combat the COVID-19 pandemic has resulted in a rapid change from university education towards online education in recent years. Lecturers, researchers and students showed unequal unity and collaboration to face the problem by seeking to collect and execute excellent ideas through mutual assistance. More than ever before, it established its importance for colleges to the practical needs of KM. However, the successful KM relies on organizational cultures and procedures that enhance individual's students and employees in higher education institutions—in terms of talents, motivation and skills. We examined in this research

whether lessons universities should learn from the quick and broad transition from classical education to online distance education. Therefore, we explored the general relationship between university KM and e-learning to identify insights relevant to the perception and practice of the students in a managerial environment. Our quantitative study of pre-epidemic education among Information Science and Library Management students, supported by conclusions regarding e-learning habits, gives teachers and educational manager's vital information for the future. However, we know that other higher education functions may need to be modified depending on the duration of the epidemic.

The response rate is included in the limits of this study. The number of participants is two hundred and twenty-four compared to all students from the University of Rajshahi. Only Department of Information Science and Library Management was included in the present study. This survey was done to ensure that the participants (who are anonymous and voluntarily participating) are protected and reduce any biases in our results. That is why it is impossible to discount the possibility of institutional prejudice. Our findings can be utilized in future academic studies to improve the practice and establish a culture and process that promotes and implements practical steps to improve students' views of online learning and, more broadly, learning habits and after the COVID 19 pandemic. Finally, it presents a complete image of the management of knowledge in e-learning universities and integrates the findings into significant insights into the management which take account of students' preferences for learning.

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# Towards a Conceptual Framework to Mitigate Dropout Risk in Open and Distance Learning (ODL) in Higher Education Institutions



Nora'ayu Ahmad Uzir , Irni Eliana Khairuddin ,  
Muhamad Khairulnizam Zaini ,  
and Muhammad Abdul Aziz Nur Izzuddin Izzham 

**Abstract** The problem of student attrition or better known as a dropout from completing courses in tertiary education institutions become more alarming, especially in online learning during the COVID-19 pandemic period. Current research has stressed that one of the critical factors that contribute to students' attrition is academic difficulties. Students were found to be poorly prepared for learning activities, lack self-regulation skills, weak academic knowledge and specific study skills that could impede progress towards learning goals. However, the reason behind this phenomenon is still unexplained and the evidence in the Open and Distance Learning (ODL) context is still scarce. Therefore, such difficulties signify the needed to understand in-depth students' experiences and motivations to allow for a better understanding of the issues and challenges faced by the students particularly in ODL learning and delivery. In the nutshell, this study is expected to provide a robust theoretical framework to mitigate dropout risk as well as to offer practical guidelines to assist students learning throughout the completion of university courses.

**Keywords** Student attrition · Higher education · Open and distance learning

## 1 Introduction

The quality of education is increasingly seen by the Malaysian government as a major contributor to national wealth and economic development. The Sustainable Development Goals (SDG 4) and Twelfth Malaysia Plan, 2021–2025 (RMK-12), for instance, include quality of education as one of the goals of the national agenda, as

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N. A. Uzir (✉) · I. E. Khairuddin · M. K. Zaini · M. A. A. N. Izzuddin Izzham  
Faculty of Information Management, Universiti Teknologi MARA, Puncak Perdana Campus,  
Shah Alam, Malaysia  
e-mail: [n.uzir@uitm.edu.my](mailto:n.uzir@uitm.edu.my)

I. E. Khairuddin  
e-mail: [irnieliana@uitm.edu.my](mailto:irnieliana@uitm.edu.my)

M. K. Zaini  
e-mail: [nizam0374@uitm.edu.my](mailto:nizam0374@uitm.edu.my)

such, it is to ensure inclusive and equitable quality education and promotes lifelong learning opportunities that are relevant for the development of citizen and fulfils the aspirations of the nation. However, in an era of the COVID-19 crisis, there is increasing pressure for Higher Education institutions to undergo transformation with constrained resources. The challenges not only limited to educational outcomes such as employability and lifelong learning, but also to improve student support and experience in education.

Likewise, the COVID-19 pandemic has a profound impact on students social and academic development. Covid-cohorts students suffered from many restrictions that could link to attrition risk or academic failure (Allam et al. 2020). In this respect, attrition refers to the students who are voluntary withdrawal from a course, discontinue their academic study, or fail to complete an enrolled program due to various reasons (Adusei-asante and Doh 2016; Aydin et al. 2019; Bean and Metzner 1985; Syahira and Tarmizi 2019). Over the past few decades, a considerable amount of research has been devoted to the study of student attrition in Malaysia. In fact, until now the topic continues to receive significant attention indicating that student attrition is a crucial issue in the higher education sector. Thus, to address these concerns, education institutions are required to determine the root cause for students to dropout of the system (Aydin et al. 2019).

Fundamentally, we argue that the existing student attrition framework in ODL is still in the immature stage. There is a need for a detailed theoretical framework that could guide future development efforts in Malaysia higher education context. Hence, this study aims to explore the issues and challenges faced by the students throughout the entire semester as well as understanding the underlying reasons behind behavioural patterns and their influence on learning performance. As such, the results could provide a foundation before proceeding with the development of a comprehensive framework to mitigate the dropout risk in the ODL setting. In the remainder of this paper, we provide a brief overview of open and distance learning in tertiary education, the existing student attrition framework in Malaysia context, methodology, limitations and future work, implications, then finally conclude this work.

## 2 Background

To date, enrolment in higher education has shown explosive growth across the years. According to Malaysia Educational Statistics, in 2020, 567,625 students were enrolled in public higher institutions and it is forecast to rise to 764,000 students by 2025, or 2.6 per cent per year on average (Malaysia 2015). Hence, the unprecedented demand and a great diversification in the tertiary education sector have increased the need for digital transformation and pedagogical innovations that may promote active learning and improve academic success. However, the recent COVID-19 pandemic has changed the global higher education landscape drastically. Universities have transformed the way of teaching and learning from face-to-face to online protocols. The Universiti Teknologi MARA has no exception, the use of technology has brought

forward new pedagogical models such as Open and Distance Learning (ODL) as a viable solution to support students' learning, in which, ODL introduces flexible educational opportunities that offer students the flexibility of studying from anywhere and at any time over the Internet and through other communication means (i.e., phone call, text message).

Nevertheless, shifting the constraints of a conventional lesson structure and promoting an independent learning mode can be a "double-edged sword" for students. On the one hand, it offers immense opportunities to enrich traditional education by maximizing learning outside the classroom; but, it can also induce a great challenge to the pedagogical implementation of online education. ODL demands students to be highly autonomous and responsible to make their own learning decisions. As such, students need to know how to manage their study throughout the designated learning periods in order to complete learning tasks and thus achieve the associated learning goals. Hence, every universities have a strong aim to provide students with a conducive learning experience that could promote prompt course completion and graduation in higher education institutions.

However, the aim could not reach every student where some of them might fail to complete their study due to many reasons. Student attrition or voluntary withdrawal from academic programmes continues to be a significant challenge for higher education institutions. In a formal educational context, attrition must have detrimental effects for both students and universities, if unaddressed, could have a diminishing effect on institutional performance and student success. For students, fail to earn an academic qualification will impede their efforts to improve their socioeconomic status, while education institutions are being compromised with a bad reputation and major financial threats due to loss of income through tuition fees and charges.

Therefore, such difficulties signify the needed to understand in-depth students' experiences to allow for a better understanding of the issues and challenges faced by the students mainly in ODL learning and delivery. The proposed study is designed with twofold objectives. First, to explore students' experience in ODL and factors contributing to dropout risk. Secondly, to develop a framework to mitigate dropout risk among Universiti Teknologi MARA students. The result of this proposed research is expected to be a robust framework to mitigate dropout risk in an ODL setting. By this expected result, the study potentially has important implications for research and practice in terms of informing educators and students on the effective open and distance learning behaviours well as informing future interventions to support students in the ODL environment.

## ***2.1 Existing Student Attrition Framework in Malaysia Context***

In Malaysia, a considerable amount of research has been devoted to the study of tertiary student attrition (Allam et al. 2020; Had Sabtu et al. 2016; Raghavan 2014;

Sangodiah et al. 2015; Syahira and Tarmizi 2019). However, dropout risk particularly in open and distance learning environment has not been fully understood considering factors that lead to attrition relatively complex and studies in ODL context is still scarce. Prior research on student attrition in ODL setting by Raghavan (2014) has identified that institutional barriers are the root cause of student dropout in higher education programmes. These include low quality of support services, the ineffectiveness of learning delivery and poor assessment practices. Besides that, students inability to cope with the academic demands is another significant factor attributed to this problem.

Similarly, through revising the existing student attrition frameworks, (Had Sabtu et al. 2016) described apparently consistent factors that influence the course dropout, like institutional factors (i.e., academic support services, staff attitude, institution level), and student background characteristics (i.e., previous academic achievement, family background). In addition to that, (Had Sabtu et al. 2016) included the environmental factors (i.e., financial support, peer pressure) as an additional key aspect in this regard (refer to Fig. 1).

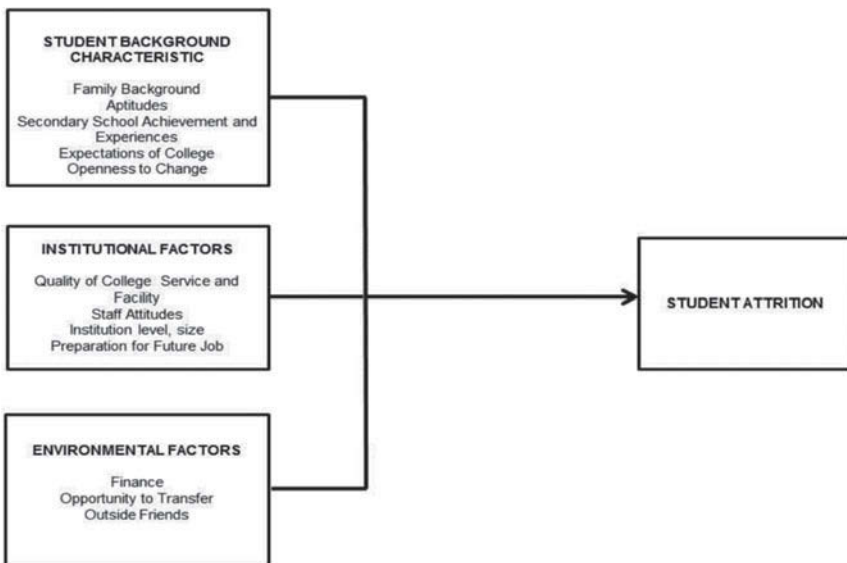


Fig. 1 The conceptual theoretical framework of student attrition by Had Sabtu et al. (2016)

On the other hand, (Syahira and Tarmizi 2019) reported that sociodemographic (i.e., the location from home and university, family education, previous academic achievement), social (i.e., physical and social activities), psychological (i.e., personal traits and learning satisfaction), and enrolment (i.e., academic score, credits hours, study mode) are the four key factors that may possibly have an effect on student attrition. In sum, most of these research reported that socio-economic (i.e., family income, parents' education), academic difficulties (i.e., academic score, lack self-regulation skills, weak academic knowledge or specific study skills), personal difficulties (i.e., poor self-esteem, dissatisfactions, felt isolated) and geographical location (i.e., the location from student's home and university) are the common factors that often led to student attrition.

Recent research, however, revealed that a majority of the students' population struggle to attain an appropriate level of self-regulation (i.e., weak academic knowledge or specific study skills and lower level of motivation) (Allam et al. 2020; Carpenter et al. 2020). As such, students are often unprepared, struggling with the regulation of their time and effort, especially during online preparation activities (Dhawan 2020; Heinerichs et al. 2016) that often lead to a higher risk of attrition (Lee and Choi 2011; Sangodiah et al. 2015; Syahira and Tarmizi 2019). Although preceding research emphasized the student personal issues and academic concerns, yet, the reasons and motivations behind student's withdrawal or discontinuation of study somewhat remain superficial (Raghavan 2014). Therefore, a thorough investigation is urgently needed to understand in-depth students' regulation and motivation, to allow for a better understanding of students behaviours and factors contributing to the dropout risk particularly in open and distance learning environments. Meanwhile, such previous studies may provide foundations of immature framework and this proposed research is an effort to bridge such gap.

### 3 Methodology

The study aims to develop a framework to mitigate dropout risk among students in Universiti Teknologi MARA. The study will involve four main phases: (i) preliminary study, (ii) data collection, (iii) data analysis, and (iv) framework design.

- (i) Preliminary study—A comprehensive literature review will be conducted in reviewing and analyzing the current state-of-the-art of research on student attrition in tertiary education institutions. This includes literature related to the existing theories and framework as well as the issue of attrition due to ODL learning and delivery.
- (ii) Data collection—To address research objective one, the semi-structured interview will be carried out involving 20 university students who have experienced open and distance learning during the COVID-19 pandemic years. In addition, this study also will rely on student performance data. The aim of the interviews is to understand the issues and challenges faced by the students throughout

the entire semester as well as understanding the underlying reasons behind behavioural patterns and their influence on learning performance.

Then, the students will complete the Change Enrolment Survey (McRoberts and Miller 2015). This survey will be used to examine attrition rates in university programs. The purpose of the questionnaire is to explore factors influencing students' decisions to leave university programs prior to completing their studies. This survey consists of three sections, namely (i) wellness considerations, (ii) financial considerations, and (iii) college experience considerations. Specifically, the college experience considerations consist of ten items specifically to measure academic interest like "I have lost interest in the subject matter" and "I do not feel academically prepared for this program".

- (iii) Data analysis—All the interviews will be fully transcribed and analysed. A thematic analysis will be used to analyse those transcripts by using the Nvivo software. Meanwhile, survey data will be analysed using R-programming and a network analytic approach based on Epistemic Network Analysis (Shaffer 2018) as it allows for identifying and quantifying connections among elements in coded data and representing them in dynamic network models.
- (iv) Framework design—The framework will integrate findings from both semi-structured interview and survey results. The framework building will combine all of this information into a dynamic model. This phase is dedicated to addressing research objective two—to develop a robust framework to mitigate dropout risk among Universiti Teknologi MARA students.

## 4 Limitations and Future Work

This work has several limitations. First, this study will include a sample consisted primarily of students from Universiti Teknologi MARA. The results can be limited and could not be generalized to the higher education context as a whole. Thus, larger samples from various tertiary education institutions should be planned for future efforts.

Second, the COVID-19 pandemic restrictions could slow down the progress of data collection (i.e., interview and survey), which likely to affect the research timeline. In case of a prolonged course of pandemic COVID-19, the interviews will be arranged and conducted via online platforms, such as Google Meet or Zoom meetings. This is within our future work plans.

## 5 Conclusions and Implications

Taken together, this study proposes to explore issues and challenges in open and distance learning as the foundation for the establishment of an empirical-based

framework to mitigate dropout risk among Universiti Teknologi MARA students. Notably, this study is expected to provide as follows:

- (i) Empirical evidence—This study will contribute to the literature by providing empirical evidence on the issues and challenges faced by the Universiti Teknologi MARA students in open and distance learning during the COVID-19 pandemic period.
- (ii) Theoretical contribution—This study will contribute to the refinement of the existing student attrition framework. The theoretical framework provides a step toward a better understanding of the critical factors contributing to dropout risk, particularly in the ODL environment.
- (iii) Practical contribution—This study could offer practical guidelines to assist students learning throughout the completion of university courses. In addition, it could advance educators understanding of students learning as well as informing future interventions to support students in ODL.

Overall, the study potentially has important implications for research and practice in terms of informing educators and students on the effective open and distance learning behaviours as well as an understanding of students' motivation that are predictive of their academic outcomes and persistence in their studies.

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# The Adoption of Augmented Reality Technology in e-learning: Case of a Mobile Application During Covid-19



Eman Daraghmi 

**Abstract** Covid-19 has led to universities and schools lock down across the world. Education has transformed dramatically from physical classroom learning to e-learning, whereby teaching is done remotely on digital platforms. During the pandemic, several solutions had been suggested in order to foster e-learning. Augmented Reality (AR) is a promising solution which plays a distinctive role in e-learning and has turned to be one of the most interesting learning approach. This research investigated the students' attitude and acceptance toward utilizing augmented reality applications in e-learning under the "Technology Acceptance Model" (TAM). Results indicate that perceived ease of use, user satisfaction, perceived usefulness, attitude, social influence, environmental variables, perceived enjoyment along with perceived the quality of AR-based applications including the quality of the system, services and information are determinant factors. Additionally, findings indicate that there exists a significant influence of gender differences on the acceptance of AR-based applications in e-learning among female and male students.

**Keywords** Augmented reality · AR · e-learning · Pandemic · Covid-19 · TAM · Acceptance

## 1 Introduction

Covid-19 pandemic has led to universities and schools lock down across the world, over 1.2 billion students are out of the classroom worldwide. Education has transformed dramatically from physical classroom learning to e-learning, whereby teaching is done remotely on digital platforms, such as Zoom and teams. A number of students found that e-learning is very hard and complex as they will be provided with a variety of information that are sometimes difficult to understand and reconstruct. Students found their selves staring at a huge amount of information provided on-line wishing their teacher to appear illustrating and visualizing everything for

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E. Daraghmi (✉)  
Palestine Technical University Kadoorie, Tulkarm, Palestine  
e-mail: [e.daraghmi@ptuk.edu.ps](mailto:e.daraghmi@ptuk.edu.ps)

them. Augmented Reality (AR) is the solution which has turned to be one of the most interesting and promising approach in e-learning. With AR, a reality view is adjusted via a computer in order to add a virtual layer over the real one. To increase the perception that the user has of reality, AR provides overlaying layers of virtual information on real scene.

Several AR applications have been developed as learning tools for fostering e-learning and thus, improving the students' satisfaction (Wagner and Barakonyi 2003)–(Sergey et al. 2015). Danial Wagner and Istvan Barakonyi (2003) proposed an educational tool that utilizes collaborative AR in order to allow students learning the meaning of kanji symbols. The author in Martínez Zarzuela et al. (2013) introduced AR based serious game for handicapped people and children. A virtual zoo has been created with 3D elements to increase the knowledge about animals. In (Sergey et al. 2015), the authors have implemented an AR based interactive educational content with 3D visualization technologies in secondary education.

Despite the popularity of AR based tools and applications, few studies have examined the adoption of AR-based applications in e-learning during Covid-19 pandemic. A number of previous research have explored the adoption and the acceptance of new services and technologies, such as, online banking, e-learning, and e-commerce and valuable results have been obtained. However, these results and findings could not be extended directly to the context of employing AR-based services and applications in e-learning. Thus, knowledge in the field is limited. Moreover, previous studies have analyzed the effect of gender differences toward accepting a new technology (Wang et al. 2009; Okazaki and Mendez May 2013). Researchers (Terzis and Economides 2011) concluded that a difference is exist among females and males as regards to the users' perceptions in accepting and adopting a new technology. Therefore, a theoretical model for examining the attitude and the acceptance has been developed in the current research. In this research, under the TAM, the effect of gender differences toward accepting AR-based applications in e-learning has been investigated. For this research, an interactive AR-based application (Daraghmi and Yousuf 2016) for supporting electrical engineering students during e-learning has been developed. The tool via AR provides visual information and 3D objects for students to help them understanding the concepts of electronic components and abstractions. The knowledge of circuit design and simulation is also supported by the app. Research findings propose implications for the industry of AR-based services, tools and applications.

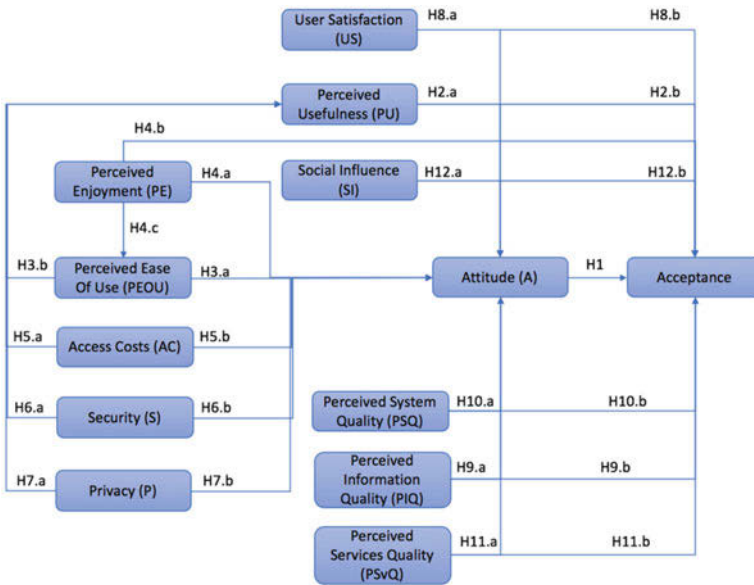
## 2 Conceptual Research Model

AR-based applications could only play a key role in enhancing and improving e-learning through the students' adoption or acceptance. Thus, this research, via the "Technology Acceptance Model" (TAM) (Davis 1986a), investigates the students' attitude and acceptance of using AR-based applications in e-learning. As stated in the "Theory of Reasoned Action" (TRA) (Ajzen and Fishbein 1980), the attitude and various norms determine the intentions behavior. The attitude represents the feeling

of a person toward one specific behavior which is influenced by his/her beliefs (Ajzen 1985).

In 1986 (Davis 1986a), the acceptance and the adoption of an Information Technology (IT) or an Information System (IS) under the TAM has been demonstrated. Davis illustrated that Perceived Ease Of Use (PEOU) and Perceived Usefulness (PU) are the two key constructs that has significant effect on the usage of a system. PU represents the level of a person’s belief that using an information system will improve, advance and enhance his/her job performance, whereas PEOU represents the level of a person’s feeling that using an information system will be effortless and easy. According to Davis (Davis 1986a), indirect positive influence of PEOU via PU on the usage of a system was existed. Others concluded that the usage of an IS is determined by the behavioral intention of users, which is defined by the user attitude and PU. In addition, according to Szajna (1996; Adams et al. 1992), the user PU and the PEOU determine the user attitude.

TAM is extended in this research to examine the students’ acceptance of using AR-based applications in e-learning during Covid-19. Perceived Ease Of Use (PEOU), User Satisfaction (US), Perceived Usefulness (PU), Perceived Enjoyment (PE), the environmental variables, Perceived Quality (PQ), and Social Influence (SI) constructs are adopted in the proposed conceptual research model as illustrated in Fig. 1.



**Fig. 1** The acceptance of employing AR-based application in e-learning: Conceptual Research Model

### 3 Hypotheses

Table 1 summarizes the hypotheses proposed in this research.

**Table 1** Proposed hypotheses

| Construct                    | Hypothesis  |
|------------------------------|---|
| Attitude (A)                 | <b>H1.</b> A student’s attitude positively affects the acceptance of using AR-based applications in e-learning  |
| Perceived Usefulness (PU)    | <b>H2.a.</b> PU significantly and positively affects the attitude toward using AR-based applications in e-learning<br><b>H2.b.</b> PU significantly and positively has an effect on accepting employing AR-based applications in e-learning                       |
| Perceived Ease Of Use (PEOU) | <b>H3.a.</b> A positive significant effect is existed of PEOU on the attitudes toward using AR-based applications in e-learning AR<br><b>H3.b.</b> PEOU positively affects the PU   |
| Perceived Enjoyment (PE)     | <b>H4.a.</b> PE positively affects the attitude toward using AR-based applications in e-learning<br><b>H4.b.</b> PE positively affects the acceptance of using AR-based applications in e-learning<br><b>H4.c.</b> PE positively and significantly affects PEOU   |
| Access Costs (AC)            | <b>H5.a.</b> Access costs negatively and significantly affects the PU<br><b>H5.b.</b> Access costs negatively and significantly affects the students’ attitude toward using AR-based applications in e-learning   |
| Security (S)                 | <b>H6.a.</b> A positive and significant influences of security on the PU is existed<br><b>H6.b.</b> A positive and significant effects of security on the students’ attitude toward using AR-based applications in e-learning is existed                          |
| Privacy (P)                  | <b>H7.a.</b> Privacy has a positive significant influence on the PU<br><b>H7.b.</b> Privacy has a significant and positive influence on the attitude toward employing AR-based application in e-learning  |
| User Satisfaction (US)       | <b>H8.a.</b> The US significantly and positively has an influence on the attitudes toward using AR-based applications in e-learning<br><b>H8.b.</b> The US significantly and positively has an influence on the acceptance of AR-based applications in e-learning |

(continued)

**Table 1** (continued)

| Construct                           | Hypothesis   |
|-------------------------------------|--|
| Perceived Information Quality (PIQ) | <p><b>H9.a.</b> There is a positive effect of PIQ on attitudes toward using AR-based apps in e-learning</p> <p><b>H9.b.</b> There is a positive influence of the PIQ on the students' acceptance of using AR-based applications in e-learning</p>  |
| Perceived System Quality (PSQ)      | <p><b>H10.a.</b> The PSQ positively affects the attitude toward using AR-based applications in e-learning</p> <p><b>H10.b.</b> The PSQ positively affects the students' acceptance of using AR-based applications in e-learning</p>  |
| Perceived Services Quality (PSvQ)   | <p><b>H11.a.</b> The PSvQ positively affects the students' attitude toward AR-based applications in e-learning</p> <p><b>H11.b.</b> The PSvQ positively affects the students' acceptance of using AR-based applications in e-learning</p>  |
| Social Influence (SI)               | <p><b>H12.a.</b> There is a significant and positive effect of Social influence on the students' attitudes toward employing AR-based applications in e-learning</p> <p><b>H12.b.</b> Social influence positively affects the students' acceptance of using AR-based applications in e-learning</p> |

### 3.1 *Students' Acceptance of Using AR-Based Applications in e-learning*

In this study, we adopt the students' acceptance to show their intention toward using AR-based applications in e-learning. The acceptance is the degree and the level to which a person accepting the use of a technology. In 1987, TRA (Wm 1987) concluded that there is a correlation between a user's intention and his/her behavior. This study believes that finer students acceptance of AR-based applications in e-learning indicates increased willingness to employ and utilize them in e-learning.

### 3.2 *Students' Attitude Toward Using AR-Based Applications in e-learning*

TRA indicates that the concerning feelings and intuition about the behavioral consequences determine the person attitude toward a behavior. As stated by Ajzen and Fishbein (1980; Ajzen 1985), the attitude of a person toward a behavior is defined as the positive or the negative feelings toward performing the target behavior. TAM indicates that the attitude of a person toward a certain behavior significantly and positively affect his/her acceptance behavior (Davis 1986a).

Previous research have concluded that the acceptance of a technology is affected by the attitude toward an information technology (Chang and Zhu 2011) (Daraghmi 2016) meaning when students' attitude toward AR based tools in e-learning is

positive, their acceptance of the AR based applications in e-learning have to be strong.

In this research, as proposed by TAM and TRA, the users' acceptance of a new technology or an Information System (IS) is influenced and affected by the users' attitude. Therefore, this study believes that the students' acceptance of AR-based application in e-learning is affected by their attitudes toward using AR-based applications in e-learning.

The following hypothesis is tested as (see Fig. 1):

**H1.** A student's attitude positively affects the acceptance of using AR-based applications in e-learning.

### 3.3 *Perceived Usefulness (PU)*

As defined by (Davis 1986a), Perceived Usefulness (PU) is the level to which a person feels and believes that using an information technology system could enhance his/her job performance. According to the empirical results conducted by Mathieson in 1991 (Mathieson 1991), the attitude of users toward employing and utilizing an information system is positively affected by the PU. In this study, PU is defined as the degree to which students' feel that using AR-based applications in e-learning could advance their performance and achievements. Therefore, this research examines the below hypotheses:

**H2.a.** PU significantly and positively affects the attitude toward using AR-based applications in e-learning.

**H2.b.** PU significantly and positively has an effect on accepting employing AR-based applications in e-learning.

### 3.4 *Perceived Ease of Use (PEOU)*

It (Davis 1986a) describes the feelings that the use of a particular system is effortless, straightforward and easy. Davis (1986a, 1989) concluded that PEOU positively and significantly influence the usage of a system. Davis believes that the PEOU will not affect the usage of a system as long the PU is under control. Venkatesh and Davis (Venkatesh and Morris 2000) found that the acceptance of an information technology is affected positively by the PEOU. Moreover, Hung-Pin Shih (Shih 2004) concluded that the PU is affected positively by the PEOU.

Thus, in this study, we define the PEOU as degree to which a student perceives that utilizing AR-based applications in e-learning would be easy, straightforward and effortless. The below hypotheses were tested:

**H3.a.** A positive significant effect is existed of PEOU on the attitudes toward using AR-based applications in e-learning AR.

**H3.b.** PEOU positively affects the PU.

### 3.5 *Perceived Enjoyment (PE)*

As defined by Teo and Noyes (2011), Perceived Enjoyment (PE) describes the degree and the level of enjoyment perceived through using the technology. Previous studies have concluded that PE is one of robust and strong constructs which is correlated with the core constructs of the TAM (i.e. namely, PEOU and PU) in illustrating the intention behavior of using a technology (Cheney 2006) (Wu et al. 2007). According to (Davis 1986b, 1989), TAM indicated that the PE is similar to intrinsic motivation which drives the performance of an activity that is not linked for any reason other than the process of performing the activity per se. Venkatesh and Speier (2000) concluded that when comparing the game-based training with the traditional one, the game-based method enhances the intrinsic motivation which causes higher PE and higher PEOU results than the traditional training method. Therefore, this study defines PE as that level of enjoyments and pleasant felt by students when using an AR-based application in e-learning. The following hypotheses were examined:

**H4.a.** PE positively affects the attitude toward using AR-based applications in e-learning.

**H4.b.** PE positively affects the acceptance of using AR-based applications in e-learning.

**H4.c.** PE positively and significantly affects PEOU.

### 3.6 *Environmental Constructs*

Triandis' model in 2000 (Lee 2000) found that the usage behavior of an information system is determined by the facilitating conditions and the environmental constructs such as access costs, privacy and security. Therefore, this study explored the effect of the access costs, privacy and security as environmental constructs on the students' acceptance of using AR-based applications in e-learning.

- **Access costs (AC)**

Access costs mean the expenses of: downloading a mobile application, the network speed, Bluetooth, GPRS, or Wi-Fi connections. Strader (1997) believes that accepting a new product, service or technology is influenced and determined by its access costs. This study examines the effect of AC on the students' attitude toward using AR-based applications in e-learning.

**H5.a.** Access costs negatively and significantly affects the PU.

**H5.b** Access costs negatively and significantly affects the students' attitude toward using AR-based applications in e-learning.

- **Security (S)**

According to Shin and Kim (Shin and Kim 2008), security is the degree and the level to which a person believes that when using a technology or a particular



system, it is under control and secure. In 2006, Pousttchi found that security positively influences and affects the attitude of employing and utilizing an information system (Linck et al. 2006). Thus, this study examines the influence of security on the students' attitude toward using AR-based applications in e-learning.

**H6.a.** A positive and significant influences of security on the PU is existed.

**H6.b** A positive and significant effects of security on the students' attitude toward using AR-based applications in e-learning is existed.

- **Privacy (P)**

According to Caroline Lancelot Miltgen and Aleš Popovič (2013) privacy is defined as the level of concern felt by a user regarding the disclosure of his/her information. Researchers indicated that the privacy of information means improper access of data, errors and unauthorized secondary use and access (Caroline Lancelot Miltgen and Aleš Popovič 2013). Previous research have investigated the influence of privacy on the behavior of users in the contexts of information technology, such as, online health information disclosure (Bansal and Zahedi 2010), online shopping (Zhou and Li 2014), social network sites (Xu et al. 2008), and mobile service contexts (Hw Kim and Chan 2007). Therefore, this study examines the following hypotheses:

**H7.a.** Privacy has a positive significant influence on the PU.

**H7.b** Privacy has a significant and positive influence on the attitude toward employing AR-based application in e-learning.

### 3.7 *User Satisfaction (US)*

In 1998, Gelderman (1998) defined user satisfaction as the satisfying feeling when using particular services or products that meet the person expectation. Researchers previously concluded that the effectiveness and the efficiency of using an information system in addition to the system's performance are affected directly or indirectly by the user satisfaction (Gelderman 1998). Although Davis in the original TAM did not include the US as a construct, researchers had extended the TAM by adding the user satisfaction as a construct. Thus, two hypotheses were examined:

**H8.a.** The US significantly and positively has an influence on the attitudes toward using AR-based applications in e-learning.

**H8.b.** The US significantly and positively has an influence on the acceptance of AR-based applications in e-learning.

### 3.8 *Perceived Quality of AR-Based Applications in e-learning*

- **Perceived Information Quality (PIQ)**

The quality of information describes the quality of the output of an Information System (IS). The PIQ measures the performance and the effectiveness of an information system. Previous research (Yi et al. 2013; Nik et al. 2014) have examined the influence of PIQ on the intention behavior toward using an IS, such as e-shopping, e-health, and mobile service. Thus, it is expected that PIQ would significantly influence the students' acceptance and attitude toward using AR-based applications in e-learning:

H9.a. There is a positive effect of PIQ on attitudes toward using AR-based apps in e-learning.

H9.b. There is a positive influence of the PIQ on the students' acceptance of using AR-based applications in e-learning.

- **Perceived System Quality (PSQ)**

The quality of a system is defined as the performance and the properties of an information system in addition to the functions' quality provided by the system.

Previous research conducted by Hamilton (1981) adopted the PSQ to assess the performance and the efficiency of an information system. This study assumes that the PSQ affects the attitude and acceptance toward using AR-based apps in e-learning:

H10.a. The PSQ positively affects the attitude toward using AR-based applications in e-learning.

H10.b. The PSQ positively affects the students' acceptance of using AR-based applications in e-learning.

- **Perceived Service Quality (PSvQ)**

Parasuraman et al. (1988) have conducted that the quality of services provided by an IS determines its success and the level of acceptance. Thus, we believe that that perceived service quality has a positive effect on attitudes and acceptance of AR based services in e-learning:

H11.a. The PSvQ positively affects the students' attitude toward AR-based applications in e-learning.

H11.b. The PSvQ positively affects the students' acceptance of using AR-based applications in e-learning.

### **3.9 Social Influence (SI)**

It defined as changing the behavior of someone, intentionally or unintentionally. Venkatesh et al. (2000) illustrated the influence of social relations as the process where one's belief or attitude are affected and influenced by the thought or believes of others. Previous studies had explored the SI effect on the adoption of services, products or technologies. Mixed results were founded (Daraghmi 2016). (Talukder and Quazi 2011) showed that a negative correlation is found between both the attitude and the acceptance of new technology and the social influence, where (Kulviwat et al. 2009) concluded that the user attitude toward the adoption of new technology

is positively affected by the social influence. Moreover, Krisanic shows that social media makes it easier for users to be influenced by other people (Krisanic 2008). Thus, we propose the below hypotheses:

**H12.a.** There is a significant and positive effect of Social influence on the students' attitudes toward employing AR-based applications in e-learning.

**H12.b.** Social influence positively affects the students' acceptance of using AR-based applications in e-learning.

### ***3.10 Gender as a Moderator Variable: Males vs. Females***

Previous studies had explored the influence of gender differences (male and female) toward the adoption and the acceptance of new technology. Mixed results were founded as some researchers concluded the males are influenced by perceived usefulness, while the SI and PEOU affect females (Wang et al. 2009; Terzis and Economides 2011). Thus, in this study, as a moderator variable, the gender differences had employed. The below hypothesis is proposed:

H13: A significant difference is existed between female and male students in the adoption of AR-based applications in e-learning.

## **4 Research Data and Measurement**

Participants in this study included 198 undergraduate and graduate students who are enrolling in electronic and circuit design course from one university in Palestine. The age of participants ranges from 18 to 35 years old. In order to ensure the participants' involvement in this study, an extra prize is provided to them. An AR-based application, namely PseduoEye was designed for this study. Due to Covid-19, universities and schools had locked down across the world. Education has transformed dramatically from physical classroom learning to e-learning, whereby teaching is done remotely on digital platforms. Therefore, PseduoEye was designed to foster the circuits design and assembling skill which is considered as one of the complex course outcomes and skills that students must achieve by the end of the course. Usually, this skill will be acquired via lab sessions given to the students. The app via augmented reality will guide students to understand the functionality of electronic components and thus designing a complete electronic circuit without much effort. The app recognizes any electronic component scanned by a user smart phone via the Content-Based Image Retrieval (CBIR) technique to display a complete description about the detected electronic component, such as features, applications, the component functionality. PseduoEye via AR illustrates and visualizes how the detected component can be wired in a complete electronic circuit (see Fig. 2).

Before filling the questionnaire, an informed consent document had been read by all participants for informing them that they can stop anytime with no penalty as

**Fig. 2** PseudoEye application



their participation is voluntary. After obtaining the needed permissions, we installed the PseudoEye application on the mobile devices of participants for one semester (16 weeks). The participants were then asked complete a survey about their gender, educational level, age, prior experience with e-learning platforms, and their beliefs, attitude, feelings and acceptance. The sample included 90 (49.50%) female and 104 (50.50%) male students. The age of participants ranged from 18 to 20 ( $n = 84$ ), from 21–23 ( $n = 69$ ) and from 24 to 35 ( $n = 45$ ). Table 2 summarizes the participants’ demographics characteristics.

Table 3 shows the 13 constructs that were measured in the current study via Likert scales with six-points (0–5) ranging from “strongly disagree” to “strongly agree”: Attitude (A), Perceived Usefulness (PU), Access Costs (AC), Privacy (P), security (S), Perceived Ease of Use (PEOU), Social Influence (SI), User Satisfaction (US), Perceived Information Quality (PIQ), Perceived Enjoyment (PE), Perceived Services Quality (PSvQ), Perceived System Quality (PSQ), and User Acceptance (UA).

## 5 Results and Findings

### 5.1 Measurement Model

This study had evaluated the validity and the reliability of all constructs using the reliability and the convergent validity criteria. The internal consistency of the survey was measured by calculating the value of Cronbach’s alpha or coefficient alpha (Cronbach 1951). Results demonstrate that the value of Cronbach’s Alpha of the A,

**Table 2** Demographics characteristics of the sample (total = 198)

|  | Number | %      |
|--|--------|--------|
| Age  |        |        |
| 18–20  | 84     | 42.40% |
| 21–23  | 69     | 34.80% |
| 24- 35   | 45     | 22.70% |
| Gender   |        |        |
| Male   | 104    | 50.50% |
| Female   | 90     | 49.50% |
| General experience of participants on using smartphones applications in e-learning |        |        |
| One year or less   | 100    | 50.50% |
| More than one year   | 98     | 49.50% |
| Education  |        |        |
| Diploma  | 72     | 36.40% |
| Undergraduate  | 71     | 35.90% |
| Master   | 55     | 27.80% |

AC, S, P, PU, PEOU, US, PSQ, PIQ, PSvQ, SI, PE, and UA are: 0.937, 0.905, 0.842, 0.927, 0.919, 0.900, 0.861, 0.948, 0.956, 0.870, 0.982, and 0.905 respectively. As shown, the Cronbach alpha for all constructs are greater than 0.842 which meets with acceptance level 0.7 recommended by Nunnally (1967). Additionally, the study examined the reliability of the survey by measuring the value of Composite Reliability (CR) (Chin and Gopal 1995), and results indicate strong reliability as the minimum value of CR among all constructs is 0.744 (see Table 3). We also have calculated the “Average Variance Extracted” (AVE) to measure the validity of the survey, and the results as shown in Table 3 support the convergent validity of the measures (i.e. the minimum value of AVE among all constructs is 0.732) (Fornell and Larcker 1981).

Additionally, the discriminant validity that refers to the extent a construct is truly distinct, differs and uncorrelated with the other neighboring constructs (Hair et al. 2006) was evaluated. The discriminant validity was calculated from the latent constructs correlations matrix (see Table 4), where the square roots of the AVE along the diagonal are reported. The correlations between a construct and the other constructs in the survey appear in the lower left off diagonal elements in the matrix. As suggested by Hair et al. (2006), that value of the square root of the AVE shared between the construct and its measures have to be higher than the square root of the AVE shared between the construct and the other constructs in the model, which means the discriminant validity is satisfied when the value of the square root of the AVE (i.e. diagonal elements) are higher than the off-diagonal elements in the same column and row. Table 4 indicates that the square roots of the AVE values of all constructs are significantly higher than inter-construct correlations which demonstrate the constructs’ validity.

**Table 3** Cronbach alpha and the Latent variables statistics for the questionnaire

|   | $\alpha$ | AVE   | CR    |
|---|----------|-------|-------|
| 1. Attitude (A)   | 0.937    | 0.739 | 0.894 |
| A1. I perceive that e-learning experience with the use of AR-based application is appealing   |          |       |       |
| A2. I like e-learning with the use of AR based application  |          |       |       |
| A3. I believe that using AR-based application makes e-learning more interesting   |          |       |       |
| 2. Perceived Usefulness (PU)  | 0.919    | 0.896 | 0.744 |
| PU1. The e-learning experience with the use of AR-based application will save my time and effort  |          |       |       |
| PU2. The e-learning experience with the use of AR-based application is useful   |          |       |       |
| PU3. I believe that supporting the e-learning with AR-based application will improve my learning and comprehension of certain course concepts |          |       |       |
| 3. Perceived Ease of Use (PEOU)   | 0.900    | 0.912 | 0.831 |
| PEOU1. I believe that using AR-based application is clear and not a problem for me  |          |       |       |
| PEOU2. PEOU I feel that the e-learning experience with the use of AR-based application is easy  |          |       |       |
| 4. Perceived Enjoyment (PE)   | 0.890    | 0.732 | 0.891 |
| PE1. Using AR-based application in e-learning is fun and enjoyable for me   |          |       |       |
| PE2. I enjoy using the AR-application while studying  |          |       |       |
| PE3. I am not bored while using the AR-based application  |          |       |       |
| 5. Access Costs (AC)  | 0.905    | 0.742 | 0.896 |
| AC1 I believe that accessing an AR-based application via my mobile is not expensive   |          |       |       |
| AC2 I feel that accessing an AR-based application via the Internet not expensive  |          |       |       |
| 6. Security (S)   | 0.842    | 0.798 | 0.922 |
| S1 I perceive that e-learning with the use of AR based applications is trustworthy  |          |       |       |
| S2 I believe that AR- based application is secure   |          |       |       |
| 7. Privacy (P)  | 0.927    | 0.786 | 0.917 |
| P1. I am not worry about the disclosure of my personal information with the use of AR-based application in e-learning                         |          |       |       |
| P2. I feel that my personal information is protected from disclosure while using the AR-based application                                     |          |       |       |
| 8. User Satisfaction (US)   | 0.861    | 0.804 | 0.925 |
| US1 The e-learning experience with the use of AR-based application enhances my learning quality   |          |       |       |

(continued)

**Table 3** (continued)

|   | $\alpha$ | AVE   | CR    |
|---|----------|-------|-------|
| US2 I feel satisfied when using AR-based application  |          |       |       |
| 9. Perceived System Quality (PSQ)   | 0.948    | 0.810 | 0.790 |
| PSQ1. The quality of the AR-based app influences the e-learning experience  |          |       |       |
| PSQ2. I believe that the quality of the used AR-based application meets my expectations                             |          |       |       |
| 10. Perceived Information Quality (PIQ)   | 0.956    | 0.900 | 0.780 |
| PIQ1. I admit that the accuracy of information provided by the AR-based app will influence my e-learning experience |          |       |       |
| PIQ2. I believe that the quality of the information provided by the AR application meets my expectations            |          |       |       |
| 11. Perceived Service Quality (PSvQ)  | 0.870    | 0.810 | 0.928 |
| PSvQ1. Delivery time of the information influences the e-learning experience  |          |       |       |
| PSvQ2. I believe that the service provided by the AR application will really be performed as it is supposed to      |          |       |       |
| 12. Social Influence (SI)   | 0.982    | 0.752 | 0.901 |
| SI1. A lot of people around me support using AR-based application during my study                                   |          |       |       |
| SI2. A lot of people who are important to me believe that this application is important for me                      |          |       |       |
| 13. User Acceptance (UA)  | 0.905    | 0.809 | 0.927 |
| UA1. I accept using AR-based applications in e-learning   |          |       |       |
| UA2. This use of AR-based applications makes my learning convenient   |          |       |       |

### 5.2 Evaluating the Conceptual Structural Model

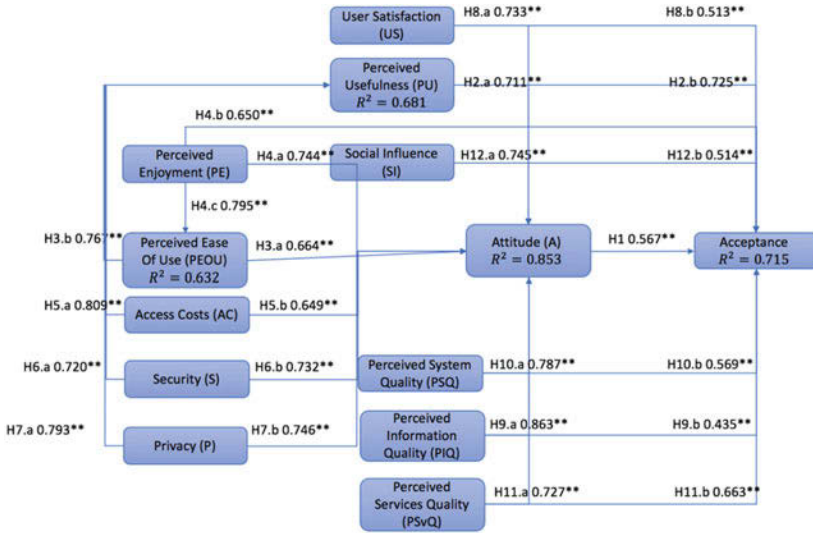
The structural model is employed in this study to examine the proposed hypotheses. For analyzing the data and evaluating the relations of the model among the proposed constructs, the Partial Least Squares (PLS) is utilized. PLS validates the reliability of the proposed items in the questionnaire. Figure 3 shows the results of the PLS analysis.

According to Acock (2008), when the value of  $\beta$  is less than 0.20, the factor has weak effect, whereas when the value of  $\beta$  is more than 0.20 but less than 0.5, the factor is categorized with moderate effect, when the value of  $\beta$  is greater than 0.5, the factor has as strong effect. Thus, as shown in Fig. 3, Attitude, SI, PU, US, PSQ and PSvQ are strong factors that influence the acceptance of employing AR-based applications in e-learning. PIQ is considered as a moderate factor affecting the students' acceptance of AR-based applications in e-learning. These factors accounting for 71.5 percent of the total AVE ( $R^2 = 0.715$ ). The hypotheses H1, H2.b, H4.b, H8.b, H9.b, H10.b, H11.b and H12.b indicate that A, PU, PE, US, PIQ, PSQ, PSvQ, and SI significantly could

**Table 4** Results of the discriminant validity test

|      | A     | PU    | PEOU  | PE    | AC    | S     | P     | US    | PSQ   | PIQ   | PSvQ  | SI    | UA    |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| A    | 0.739 |       |       |       |       |       |       |       |       |       |       |       |       |
| PU   | 0.73  | 0.896 |       |       |       |       |       |       |       |       |       |       |       |
| PEOU | 0.55  | 0.77  | 0.980 |       |       |       |       |       |       |       |       |       |       |
| PE   | 0.57  | 0.65  | 0.72  | 0.732 |       |       |       |       |       |       |       |       |       |
| AC   | 0.61  | 0.57  | 0.71  | 0.41  | 0.742 |       |       |       |       |       |       |       |       |
| S    | 0.69  | 0.44  | 0.64  | 0.47  | 0.27  | 0.798 |       |       |       |       |       |       |       |
| P    | 0.43  | 0.57  | 0.34  | 0.53  | 0.25  | 0.21  | 0.786 |       |       |       |       |       |       |
| US   | 0.37  | 0.45  | 0.61  | 0.57  | 0.63  | 0.24  | 0.59  | 0.804 |       |       |       |       |       |
| PSQ  | 0.26  | 0.16  | 0.30  | 0.43  | 0.19  | 0.25  | 0.27  | 0.33  | 0.810 |       |       |       |       |
| PIQ  | 0.21  | 0.16  | 0.26  | 0.59  | 0.08  | 0.67  | 0.16  | 0.31  | 0.654 | 0.900 |       |       |       |
| PSvQ | 0.64  | 0.67  | 0.73  | 0.51  | 0.712 | 0.621 | 0.517 | 0.791 | 0.421 | 0.621 | 0.810 |       |       |
| SI   | 0.19  | 0.21  | 0.20  | 0.47  | 0.37  | 0.16  | 0.12  | 0.31  | 0.687 | 0.30  | 0.69  | 0.752 |       |
| UA   | 0.08  | 0.20  | 0.15  | 0.16  | 0.43  | 0.17  | 0.20  | 0.16  | 0.456 | 0.26  | 0.69  | 0.760 | 0.809 |





**Fig. 3** PLS Analysis of the Structural Model (\* indicates that p is less than 0.05 which is the significance level; \*\* indicates that p is less than 0.01 significance level)

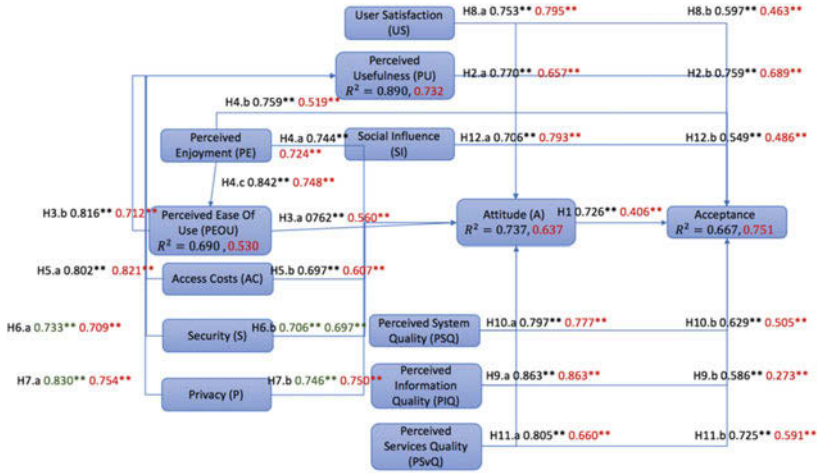
affect the students’ acceptance of AR-based applications in e-learning. Consequently, the above-mentioned hypotheses are supported.

Results show that PU, PEOU, S, AC, P, US, PIQ, PSQ, PSvQ, PE and SI significantly affect the students’ attitude toward using AR-based applications in e-learning, accounting for 85.3% of the total variance explained ( $R^2 = 0.853$ ). As the study hypothesized that Perceived Ease Of Use (H3.a), Perceived Usefulness (H2.a), Access Costs (H5.b), Privacy (H7.b), Security (H6.b), US (H8.a) PIQ (H9.a), PSQ (H10.a), PSvQ (H11.a) and social influence (H12.a) have a significant effect on the students’ attitude toward using AR-based applications in e-learning, thus, hypotheses H2.a, H3.a, H5.b, H6.b, H7.b, H8.a, H9.a, H10.a, H11.a and H12.a are supported.

Moreover, PEOU, S, AC, and P significantly affect the students’ PU. As we hypothesized that PEOU, S, AC, and P significantly affect PU (H3.b, H5.a, H6.a, H7.a), then hypothesis H3.b, H5.a, H6.a, H7.a are supported. Finally, results indicate that PE affects the PEOU. Thus, the hypothesis H4.c is supported.

### 5.3 Analyzing Gender Differences as a Moderating Variable

The effect of gender differences among male and female students is examined in this study as a moderating variable. The 198 participants are divided into two groups: the first one contains 90 (49.50%) female participants; and the second group contains 104 male participants (50.50%). The PLS analysis is utilized to examine the structural model of the groups. Results of the analysis (see Fig. 4) indicate that no significant



**Fig. 4** Analyzing Gender Differences as a Moderating Variable; female coefficients are highlighted (n means not significant; \* indicates that p is less than 0.05; and \*\* indicates that p is less than 0.010)

difference is existed among the two groups in the paths from the attitude to the acceptance of using AR-based applications in e-learning.

The differences in the path coefficients in other constructs between both groups are also tested. Findings indicate that no significant differences are founded in the paths coefficients from PSvQ, PSQ, PU, PIQ, US, PE and SI to the acceptance of employing AR-based applications e-learning. Additionally, no significant differences are existed in the paths strength coefficients from PU, PEOU, S, P, AC, SI, PSQ, PIQ, PSvQ, PE and US to attitude toward using AR-based applications in e-learning. Additionally, there are no significant differences in the paths strength coefficients S, P, AC, and PEOU to PU between both groups. Finally, there is no significant difference in the paths strength coefficients PE to PEOU between both groups.

## 6 Discussion

Results of this study imply that the acceptance of female and male students' toward using AR-based applications in e-learning is significantly affected by their attitude. This finding is inconsistent with the results of previous research that implied that the attitude significantly affects the acceptance of female users' more than male users (Sanchez-Franco 2006). Moreover, findings indicate that PSvQ, PSQ, PU, PIQ, US, PE and SI significantly affect the acceptance and the attitude toward using AR-based applications in e-learning among male and female students which is consistent with the findings of Shih (2004). The reason behind this conclusion is nowadays everyone including students rely on smart phones for supporting their activities, such as e-learning.

Results imply that in addition to PU, PEOU, S, P, AC, SI, PSQ, PIQ, PSvQ, PE and US has a positive influence on students' attitude toward using AR-based applications in e-learning with no significant difference between male and female students. This conclusion meets the results of Yu (2012) who indicated that the social influence has significant and positive effect on users' the attitude toward adopting new mobile services with no significant difference between females and males. US additionally has a significant influence on the adoption of AR-based applications in e-learning with no significant difference between male and female students which is consistent with the conclusion of Shih (2004; Gelderman 1998). Gelderman and Shih demonstrated that user satisfaction affects significantly the effectiveness, the performance and the usage of information systems. Based on the conclusion of other studies, Gelderman had modified and revised the original TAM proposed by Davis to include US as one main construct.

Previous studies concluded that PU significantly affect users' attitude and acceptance of new technologies (Yousafzai et al. 2007) which is consistent with the results of the current study since there is significant positive effect of PU on the students' attitude and acceptance toward using AR-based applications in e-learning with no significant difference between male and female students.

Moreover, the effect of gender difference on the attitude and acceptance of new technology were evaluated by previous research and mixed results were obtained (Pan and Jordan-Marsh 2010; Ong and Lai 2006). As obtained in this study, the effect of gender difference is not significant in the relationships from PU to students' attitude and acceptance toward using AR-based applications in e-learning. One possible conclusion is that all students would like to utilize and benefit from the functions provided by the AR-based application. Accordingly, the usefulness of AR-based services is the important factor in determining the attitude and the acceptance toward using AR-based applications in e-learning among male and female students.

Moreover, the current study implies that the environmental constructs, such as privacy, access costs, and security significantly and positively affects the attitude toward using AR-based applications in e-learning among male and female students which meet the results of Lee (2012). Lee concluded that privacy and security were important determinants of a person attitude toward new technologies. As expected, higher access costs would decrease the attitude toward using AR-based applications for both male and female students; thus, reducing their willingness to use AR-based apps in e-learning.

Finally, the findings imply that a positive correlation is exist between PEOU and PU among male and female students, which indicates that the influence of gender difference was not significant in the relation of PEOU to PU. On the other hand, PEOU significantly and positively affects the attitude toward using AR-based applications in e-learning among both male and female students, while PE has significant effect on PEOU among male and female students. This implication inconsistent with the results of (Davis 1986a, 1989). Davis concluded that a positive and significant influence of PEOU on the PU of males is found. Davis explained this as male users usually are more attracted to new technologies than females. This study concludes that PEOU significantly and positively affects PU with no significant difference among male

and female students. The results of the current study imply that PE had a significant effect on the main constructs of the TAM: PU, PEOU, and attitude toward using a technology.

## 7 Implication

Results of this research includes several implications for AR-based services providers and researchers. Results indicate that employing AR-based apps and services in e-learning is an effective solution to assist students and to overcome the difficulties that they face during their studying. Additionally, since the social influence positively affect the students' acceptance toward using AR-based applications in e-learning, we recommend utilizing social media (Daraghmi and Yuan 2014), such as Instagram, Twitter, Facebook, etc. to broadcast new services and technologies (Daraghmi and Yuan 2014). Results show that extending the TAM by adding the environmental constructs, as access costs, privacy, and security is valuable as they have significant role in investigating the adoption of using AR-based applications in e-learning. Moreover, it is recommended that companies and providers have to explain the effectiveness and usefulness of the new services and technologies to their female and male customers as PIQ, PU, PSvQ, and PSQ positively influence both the attitude and acceptance toward using AR-based applications in e-learning. According to the significant influences that PE has on PEOU, UA and attitude, providers of AR-based applications for e-learning have to focus on aspects of their apps in ways that promote enjoyment. This will ensure the skills and concepts provided for students are well illustrated and thus ensuring that the students acquire relevant skills for their future jobs.

## 8 Conclusion, and Future Work

Augmented Reality based-applications and services are considered as an effective supporting technology for assisting students in e-learning. The attitude of students and their acceptance toward using AR-based applications in e-learning are examined in this study by extending the TAM model. Findings meet the results of TAM which indicate that a positive and significant influence of the students' attitude, SI, PU, PE, PIQ, US, PSvQ, and PSQ on the acceptance of using AR-based applications in e-learning is existed. It is a fact that the students' willingness to utilize AR-based applications in e-learning is affected by their attitudes. Additionally, results found that PEOU, P, PU, AC, S, PSQ, PSvQ, PIQ, SI, PE and US affect the students' attitude toward using AR-based applications in e-learning. The findings show that students' understanding of the usefulness and the ease of AR-based applications indirectly affect their acceptance of using AR-based applications in e-learning via their attitudes. In line with TAM, results indicate that PEOU positively affect PU. In

addition, results imply that the revised PU significantly affects the students' acceptance of using AR-based applications in e-learning. Moreover, the empirical results concluded that better security improves and increases the students' attitude, while higher access cost would decrease it. As indicated by the extended TAM, US determines both the PEOU and the attitude toward AR-based applications in e-learning. Accordingly, greater US would increase the students' acceptance of using AR-based applications in e-learning. The current study examined the effect and the influence of gender differences as a moderating variable on the students' attitude and acceptance of using AR-based applications in e-learning. Therefore, other mediating (such as trust and emotion) and moderating (such as age, educational experience and innovation) factors are highly recommended to be explored in the future studies. Also, extending the study to include students from different countries are recommended to be investigated.

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# Predicting Saving Intention and Behavior Among University Students Using Partial Least Square Structural Equation Modelling



Ng Xin Rhu, Chong Tiang Yian, Noor Raihani Zainol, Tanvir Abi, Abdullah Al Mamun, and Anas A. Salameh

**Abstract** In Malaysia, many university students have different views on saving management based on different factors. Therefore, this study aims to examine the intention and behaviours towards saving among Malaysian students. A cross-sectional design was adopted to collect quantitative data from 307 Malaysian students and universities in Klang Valley. Furthermore, the theory of planned behaviour (TPB) was applied, followed by an extension of TBP by embedding the constructs involved in the behaviour of saving. The results indicated that financial attitude, financial socialisation, financial capability, and self-control have a positive and significant effect on saving intention and behaviour among university students in Malaysia. However, financial education did not have a significant impact on saving intention and behaviour. Notably, the results offer a guideline to policymakers and awareness campaign to increase saving behaviour and financial management. The relevant agencies should focus on improving financial attitude, financial socialization, financial capability, financial education, and self-control towards saving intention and behaviour for their future planning in education and life.

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N. X. Rhu · C. T. Yian

Faculty of Business and Management, UCSI University, Kuala Lumpur, Malaysia

N. R. Zainol (✉)

Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Kelantan, Malaysia

e-mail: [raihani@umk.edu.my](mailto:raihani@umk.edu.my)

T. Abi

Faculty of Business and Entrepreneurship, Daffodil International University, Dhaka, Bangladesh

A. Al Mamun

UKM - Graduate School of Business, Universiti Kebangsaan Malaysia, Selangor, Malaysia

A. A. Salameh

Department of Management Information Systems, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia

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937



**Keywords** Saving behaviour · Financial attitude · Financial socialisation · Financial capability · Financial education · Self-control · Theory of planned behaviour

## 1 Introduction

According to Sachitra et al. (2019), saving has an essential role in maintaining economic growth. The money management behaviour among the undergraduates at university will have a significant effect on their behaviours in future life and professions. Over time, savings would contribute to economic growth, with the rise of it having an inevitable impact on capital accumulation (Tang 2015). Based on the viewpoint of developed countries, the impact of recent global financial crises has contributed to an intensified focus on financial behaviour among decision-makers and marketers in financial services. Furthermore, young adults' behaviour in developed countries could be similar to the behaviour in developing nations (Bapat 2019). In 2008, the global economic crisis led to a direct influence on labour rates, life, and health quality of the nation. Students could be impacted by the financial difficulties of their parents (Fiksenbaum et al. 2017) and the lack of strategic understanding of the financial principles or resources. According to Nga et al. (2010), many college and undergraduate students possess low financial knowledge, which leads to high debt levels and a rise of credit card bankruptcies by threefold in Malaysia.

Saving behaviour is directly related to financial problems among the younger generation. According to Bamforth et al. (2018), the weak financial behaviour of university students was the primary determinant of the students' degree completion. However, the degree of poverty was not as high as it previously was. (Bapat 2019) demonstrated that many college and university students did not possess financial literacy, leading to high liability rates among them. Besides, many students began their study in university or colleges without any knowledge about budgeting and were vulnerable to unwise use of credit (Sabri et al. 2012). The Organisation for Economic Co-operation and Development (OECD) recorded that most people experience a large portion of the debt. In general, debt also applies to credit card loans, while liabilities are connected to investments, mortgages, and rents. For many young people, the cost of education accumulating during their studies must be paid (Fiksenbaum et al. 2017). Apart from that, the research by Bamforth et al. (2018) indicated that the financial management behaviour of undergraduates influenced their enrolment in higher education, willingness to prepare for employment, engagement, home acquisition, and philanthropy. Therefore, understanding student financial management behaviour is essential in fostering the smooth transition to adulthood.

Economists and psychologists have garnered interest in saving due to the importance of economic and individual savings. Individuals may use their savings as insurance or protection against unexpected economic change. The use of findings for funding foreign and domestic investment contributes to economic development (Kapounek et al. 2016). Besides, savings increase the probability of self-employment

among university students, which could help unemployed graduates in saving while they are still studying at school. Savings offer an opportunity for young people in venturing the capital and have positive effects on the growth of young people after graduation (Peprah et al. 2015). According to the above arguments, saving is essential for the future life of university students, while saving intention would impact the saving behaviour among them. Therefore, identifying the determinants of saving intention and saving behaviour among university students in Malaysia is important.

## 2 Literature Review

### 2.1 Theoretical Foundation

In this study, the theory of planned behaviour (TPB) was applied to determine the financial attitude, financial socialisation, financial capability, financial education, self-control (independent variables), and intention, and the intention and behaviour of saving. The behavioural objective of this research is saving intention among university students in Malaysia. Generally, TPB is the expansion of the theory of reasoned action jointly formulated by Ajzen (1991). It also attempts to justify the behaviour of the individuals (Glanz et al. 2015). The TPB model is a common theory of behavioural proximate determinants, which is widely used for a variety of behaviours, including the prediction of physical activities as demonstrated by multiple meta-analyses (Tenenbaum and Eklund 2020). According to Ajzen (2011), experiments have illustrated that the theory of planned behaviour has been one of the most widely quoted and powerful frameworks for forecasting human social behaviour by several quantitative standards. The behavioural performance could be predicted from behavioural intentions and perceived behavioural control, while intentions could be predicted from behavioural attitudes, subjective norms, and perceived behavioural control.

**Factors Affecting the Intention of Saving Behaviour.** Based on the earlier studies, five selected factors influencing saving intention will be further discussed in the following sections below. These factors include financial attitude, financial socialization, financial capabilities, financial education and self-control. According to a study by Ajzen (1991), individuals practise these behaviours due to specific intentions.

**Financial Attitude (FA).** Financial attitude refers to the experience of a person in certain things, which are influenced by experience, belief, and attitudes towards specific situations or activities (Saurabh and Nandan 2018). In TBP, beliefs are the subjective probability for behaviour to create a specific outcome, while attitudes influence behavioural intentions and shape people's actions (Ajzen 2011). This aspect was examined in research by Furnham (1985), where the positive attitude, a subjective norm, and a more perceived behavioural control would contribute to a stronger intention of performing a specific behaviour. The study by Dontsov et al. (2013) connected the financial attributes of 160 university students with various financial

security concepts. The results demonstrated different attitudes towards money, which retained the importance of the meaning in the interpretation of circumstances and impacts on the behaviour of the subject, include security provision. (Paluri and Mehra 2016) covered a few factors that could affect the individual's financial attitude, which included emotions, desire, knowledge, and comprehension of finance goods and principles. This level of understanding would be enhanced when the person garners more interest in monetary matters, which are strongly influenced by their intention and behaviour through decision-making. Consequently, a person gains more knowledge regarding daily money management issues.

Widyastuti et al. (2016) found that attitude had a significant influence on saving intention. (Yusof et al. 2018) recorded that attitude led to a positive impact on the intention to save. Attitude has been perceived as a direct and immediate cause of intent and behaviour. Thus, many studies have presented empiric support for the relationship between attitude and intention and demonstrated the significant effect of attitudes on behavioural intentions. Therefore, the following hypothesis was proposed:

Hypothesis (H1): Financial attitude has a positive effect on saving intention among university students in Malaysia.

**Financial Socialisation (FS).** Subjective norms in TBP refer to the supposed external influence to follow the behaviour, which is being performed or vice versa. External influence is derived from influential referents, such as family, partners, friends, teachers, media, and co-workers. It was believed that socialisation is characterised as the mechanism through which the person acquires attitudes, values, norms, knowledge, and behaviours from socialisation agents (Ajzen 2011). Given that the recent concepts restricted this process mainly to childhood and adolescence, these social influences were typically generated by parents, while peers were considered to have a direct impact on the student's saving intentions (Salikin et al. 2012). In other words, parents and peers have attracted increasing attention to research due to their significant role in early childhood and young people's stronger financial independence. As a result, financial problems are more prevalent in the relationship between parents and children (Sharif and Naghavi 2020).

In most cases, parental financial socialisation is critical as parents are essentially the protectors and advisors to their children's spending and financial savings. The important personal encounters to the children's knowledge of money include the parents' way of managing their budgets and addressing money issues. Besides, the parent's financial supervision of child expenditure patterns would help children internalise the behavioural expectations for financial activities and establish financial self-control (Damian et al. 2020). According to the research by Vosylis and Erentaitė (2020), the parents' financial socialisation behaviours are diverse with a specific financial impact on the students. Parental education on money management among children and access to family finances are associated with favourable financial results, such as improved control over expenditure, less impulsive spending, and reduced financial uncertainty. Meanwhile, the endurance of financial instability within the household is attributed to less favourable outcomes.

The studies performed by Sirsch et al. (2020) evaluated the first-year financial socialisation model of university students, with a focus on parents as the financial socialisation agents and real financial outcomes for students. It was found that financial knowledge and behavioural control partly mediated the impact of previous socialisation experiences on students' financial behaviour, financial relationship with parents, and financial satisfaction. This factor was also directly related to financial relationships with parents.

According to the survey from 11 universities in Malaysia by Sabri et al. (2012), the childhood consumer behaviours, such as saving behaviours, improve financial management among students. Financial socialisation may improve money management among university students through parental and religious influences. Meanwhile, the study by Danes and Yang (2014) recorded a positive relationship between family financial interactions and relationships (implicit socialisation intention) and financial socialisation (explicit intention). Therefore, it was found that the subjective norm was the strongest predictor of intent with a significant indirect effect on saving behaviour. It was indicated that beliefs had more possibilities to produce favourable intention towards saving and transformed the intention into action (Satsios and Hadjidakis 2018). The following hypothesis was proposed:

Hypothesis (H2): Financial Socialisation has a positive effect on saving intention among university students in Malaysia.

**Financial Capability (FC).** Financial capability refers to the skill, knowledge of finance, and access to manage financial resources efficiently (Scarpellini et al. 2018). To develop this capability, the person must contain appropriate access to build an understanding of all the activities and concepts related to finance. The financial capability allows a person to have choices and be aware of what they should do or where should they look for help (Williams and Oumlil 2015). The researcher indicated that financial capabilities were hypothesised to affect financial intention and financial behaviour for financial well-being due to the emerging adults' sense of influence and control over events and financial matters in their lives (Sirsch et al. 2020). Based on the study by Williams and Oumlil (2015), the financial capability shortfalls of the market segment would be based on the importance of buying behaviour among college or university students, which includes knowledge, emotional stability of a person, and introversion. Through this analysis, the researcher concluded that financial capability has a significant effect on buying intention, which places saving intention into consideration (Vosylis and Erentaitė 2020) confirmed that good financial capability had a positive effect on the saving intention to manage financial matters.

The deficit of financial capability among college students or others has been addressed in economics on a global scale. Given the severity of financial capability gaps between young adults such as colleges or university students, a complete and combinative approach for financial products or services, the influence of policymaker and parents must be implemented and conceptualised to present responsibility and a long-term solution for the issues (Williams and Oumlil 2015). This situation would create an impact on saving intention from other perspectives. According to Jackson (2020), the youngsters or family with low income and education level were faced with

a low level of financial capabilities compared to others. It was stated that most of the youngsters or unemployed people were facing the issue of low financial capabilities, which directly affected their saving intention. Hence, the following hypothesis was proposed:

Hypothesis (H3): Financial Capability has a positive effect on saving intention among university students in Malaysia.

**Financial Education (FE).** Financial education could stimulate savings as individuals possibly predict information to have a significant impact on savings behaviour among students (Duflo and Saez 2003). According to Xiao and Porto (2017), financial education could relate to any type of education on the fundamental knowledge among consumers in the university, high school, or the workplace. Financial education improves consumer's literacy and encourages the eagerness of financial behaviour and the well-being among consumers (e.g., university students) among others. Financial education is also a twofold variable that indicates if any of the financial education that gained in colleges, or the working place. A research finding from Yong et al. (2018) indicated that despite the financial issues faced by people with greater financial knowledge in Malaysia, financial education is not required to guarantee the responsibility of financial behaviour. The experimental studies supported the concept of financial knowledge through a financial education programme, which could bring an impact on saving intention and behaviour. To illustrate, it was found that students with good financial education experienced an improvement in their financial attitude and year after, an improvement in their financial behaviour.

Previous research demonstrated that the efforts of financial education could be applied to improve the actual knowledge and acquire the increasing levels of perceived financial capability (Xiao and Porto 2017). In some workplaces, employers provide financial education to their employees. This situation could be illustrated from retirement seminars, which are frequently provided by the organisation that offers pensions to strengthen the employees' interest and willingness to be involved in the financial programmes (Lusardi and Mitchell 2017). Financial education could be efficient when targeted to the family with the least funds due to their knowledge about finance. According to Widyastuti et al. (2016), a positive impact was present on financial management education, particularly towards the families with low/moderate income. The result from Lusardi (2019) indicated that planning is a part of financial education that influences an individual's saving intention. On the other hand, (McCormick 2009) categorised financial education/knowledge as a part of the seminar that improves the responsiveness of the students towards credit and reduces negative attitudes towards it. Thus, the result presented a more effective financial intention and behaviour with lesser risk. The following hypothesis was proposed:

Hypothesis (H4): Financial education has a positive effect on saving intention among university students in Malaysia.

**Self-Control (SC).** Self-control could be defined as a human emotion involved in any decision-making (Shenhav 2017). It allows a person to restrict or counter one's

response to gain different types of responses when possible. Self-control is also characterised by the exertion of self-discipline, willingness, and the ability to delay gratification (Dhandra 2020). Based on (Vosylis and Erentaitė 2020), the distress of families towards their financial situation could bring negative effects on their self-control in spending. Besides, an individual with higher self-control constantly saves money, displays better financial behaviour, feels more secure in their future or current financial situation, and reduces anxiety towards financial issues. In TBP, self-control refers to the attempt to override or alter one's dominant response tendencies and interrupt undesired behaviour. Previous literature on self-control strongly emphasised its importance as a psychological resource, which influences the individuals' financial behaviour (Achtziger et al. 2015).

Previous studies found that the significant effect on the relationship between financial behaviour and self-control focused on financial decision to illustrate that retirement planning could take part in compulsory spending, such as shopping. (Howlett et al. 2008) predicted that self-control or regulations were employed by experimental operation, where the customers could have a better preference beyond the benefits from the long term. It was also suggested that despite the good intentions among customers, there are several cases where the intentions are overwhelmed by other powerful impulses. Thus, the self-control or regulation of an individual is not in a depleted state. Rather than responding to impetus, it is used to be involved in a calm or controlled behaviour. From the studies of Gathergood and Weber (2014), an impetuous consumer with a lack of self-control might have mistaken an action, which affects their intention to save at the point-of-sales including shopping at physical stores or online shopping using their debit or credit card. Hence, the following hypothesis was proposed:

Hypothesis (H5): Self-control has a positive effect on saving intention among university students in Malaysia.

**Saving Intention and Behaviour.** The intention is a key element in the TPB model, which is assumed to have a direct effect on behaviour due to its representation of the level of effort made by people to fulfil a specific behaviour (Kautonen et al. 2015). Therefore, a stronger intention to engage in behaviour leads to the further possibility to perform the behaviour. Similarly, saving intention interprets self-reported saving behaviour as a stronger correlation of intention with more self-reported saving. This feature indicates that the participants are fairly successful in converting intentions into behaviour, representing motivation, and are motivated to save (Magdanas et al. 2017).

Savings behaviour manifests itself in a variety of intention-based behaviours such as unexpected expenditures, the need for an individual to set aside income before its use for consumption, estimation of future needs, avoiding costs for unnecessary items, and saving regularly in response to environmental or individual actions to achieve gratification. Saving represents an individual's willingness and desire to invest or save money in financial institutions to meet future needs (Widyastuti et al. 2016). A strong intention to save is present in the form of behaviour to set aside income for the unexpected events, to meet future goals, take risks based on

profit opportunities, and minimise consumption expenditure. The research findings demonstrated that saving intention has a positive and direct effect on saving behaviour (Widjajaa et al. 2020).

Behavioural intention is a stage that could lead to action. Saving behaviour studies are specifically focused on variables that affect both behavioural and factual behaviours. Used the theory of reasoned action and the theory of expected actions to investigate saving behaviour. This research found that a major saving intention affected actual behaviour, while other studies indicated that saving intention could affect saving behaviour (Widyastuti et al. 2016). Besides, (Ajzen 1991) highlighted that an individual's intention to take certain actions was determined as perceived ease and complexity of performing the behaviour and the possibility for the behaviour to represent the reality and potential impediments. Therefore, it is expected that saving intention predicts and leads to saving behaviour. Hence, the following hypothesis was proposed:

Hypothesis (H6): Saving intention has a positive effect on saving behaviour among university students in Malaysia.

**Mediating Effect of Saving Intention.** According to Ajzen (1991), the intentions to perform behaviours of different kinds could be predicted through a high degree of accuracy from behavioural attitudes, subjective norms, and perceived behavioural control. These intentions and the perceptions of behavioural control account for considerable variance in actual behaviour. Accordingly, the present study conceptualised financial attitude, financial socialisation, financial capabilities, financial education, and self-control as the significant predictors of saving intention according to the TPB Model. Theoretically, this study simultaneously articulated the relationship between saving intention and behaviour. It was rationally expected that saving intentions would have a mediating influence on the relationship between financial attitude (Amari et al. 2020), financial socialisation (Campenhout 2015), financial capabilities (Sabri et al. 2019), financial education (Widjajaa et al. 2020), and self-control of saving behaviour (Yang et al. 2020). Therefore, the following hypothesis was proposed:

Hypothesis (H7): Saving intention mediates the relationship between financial attitude, financial socialisation, financial capabilities, financial education, and self-control on saving behaviour among university students in Malaysia.

### 3 Research Methodology

In this study, Malaysian students were the respondents focusing on the tertiary level of education or higher education, which comprised public and private universities and college (Jamal et al. 2016). The students were selected in the study to examine the effect of FA, FS, FC and SC due to their condition that required payment for



their fee, expenses, and house rental among others. This study adopted the cross-sectional design and collected quantitative data from 307 respondents through an online survey (google form). The online questionnaire was distributed by sharing the link of the questionnaire form using social media, such as Facebook, email, Telegram, and WhatsApp among others. According to Henseler (2017), a sample size 10 times larger than the largest number of the inner model route was required in this case. To avoid any complications occurring from the small sample size, the questionnaire was distributed to 307 universities and college students in Malaysia.

**Survey Instrument.** All the survey items were adapted from previous empirical studies with some modifications, as presented in Table 1. The questionnaire consisted of two sections. Specifically, the first section gathered the demographic profile to obtain private information, which was confidential and used only for study purposes. The second part of the questionnaire indicates both the intention and saving behaviour among Malaysian students. The respondents rated their responses with a five-point Likert scale starting from strongly disagree, disagree, neutral, agree, to strongly agree to examine the relationship between saving behaviour among university students. Besides, a seven-point Likert scale started from strongly disagree, somewhat disagree, disagree, neutral, somewhat agree, agree, to strongly agree was used to test the intention of university students in Malaysia on their saving behaviour.

**Common Method Variance.** To avoid a single source bias, this study used all items for extraneous variables in a five-point Likert scale, while endogenous variables were presented on a seven-point Likert scale as the procedural remedy suggested by Podsakoff et al. (2003). Therefore, Harman's one-factor test was executed to check the resulting robustness in terms of common method bias. It was revealed that one component could illustrate 31.214% of the variance, which was below the maximum threshold of 50%. The results also confirmed that there was no high correlation between the variables that indicated the absence of CMV (Podsakoff and MacKenzie 1994).

**Multivariate Normality.** The Web Power online tool (<https://webpower.psychstat.org/wiki/tools/index>) was applied to test the multivariate normality. It was found that the data set had non-normality issues as both Mardia's multivariate skewness and kurtosis coefficients p-values were lower than 0.05 (Liang et al. 2019).

**Data Analysis Method.** In this research, the partial least squares structural equation modelling (PLS-SEM) was applied to assess the route structures for models with composite and latent constructs. It allowed the use of non-normal and restricted data collection (Hair et al. 2019). This analysis method was related to causal-predictive traits and performed a complex analysis based on composites without the postulation of the goodness of fit. Two phases were involved in PLS-SEM analysis, which included model estimation and correlations. Specifically, model estimation evaluated the reliability and validity of the constructs, followed by managing model correlations and model testing of the study (Ringle and Sarstedt 2016). The analysis of the study presented  $r^2$ ,  $f^2$ , and  $Q^2$ , which explained the changes in an endogenous construct caused by exogenous constructs.



**Table 1** Survey instrument

| Code       | Questions   | Source   |
|------------|---|--|
| FA—Item 1  | I need to have a good financial plan for monthly expenses                           | (Potrich et al. 2016; Dontsov et al. 2013; Sereetrakul et al. 2013)                |
| FA—Item 2  | The monthly saving habits are important for me                                      |  |
| FA—Item 3  | I often buy thing with promotion price although I rarely use the things that I buy  |  |
| FA—Item 4  | I sacred to discuss my money issues with friends and family                         |  |
| FA—Item 5  | I like to try the various method of saving  |  |
| FS—Item 1  | My parents taught me how to save and spending money in an effective way             | (Damian et al. 2020)   |
| FS— Item 2 | My parents have helped me savings during when I was young                           |  |
| FS—Item 3  | My parents let me know what expenses they spend on savings                          |  |
| FS—Item 4  | I am satisfied with my parents’ literacy of saving behaviour                        |  |
| FS—Item 5  | My family has a good habit of saving  |  |
| FC—Item 1  | I tend to spend unplanned on large purchases  | (Nga et al. 2010; Potrich et al. 2016)   |
| FC—Item 2  | I will spend more if there is an instalment payment scheme                          |  |
| FC—Item 3  | My purchasing power will go down if there is inflation                              |  |
| FC—Item 4  | I have financial back up at least three time of my earnings                         |  |
| FC—Item 5  | I pay the credit card on time so that I won’t have any extra charge                 |  |
| FE—Item 1  | I think that financial knowledge is positively related to their financial behaviour | (Ramalho and Forte 2019; Paluri and Mehra 2016; Nga et al. 2010; Park et al. 2018) |
| FE—Item 2  | I think that financial health is used to decide on fate                             |  |
| FE—Item 3  | I always read the newspaper in the business section                                 |  |
| FE—Item 4  | I always join conversation that are related to financial matters                    |  |
| FE—Item 5  | I always research before investing in anything                                      |  |

(continued)

**Table 1** (continued)

| Code      | Questions   | Source   |
|-----------|---|--|
| SC—Item 1 | I always think twice before I use my money  | (Aydin and Selcuk 2019; Potrich et al. 2016; Fünfgeld and Wang 2009) |
| SC—Item 2 | I think that it is important to spend money on our budget                           |  |
| SC—Item 3 | I think that it is important to save money every month                              |  |
| SC—Item 4 | I think that it is important to follow our expenses plan monthly                    |  |
| SC—Item 5 | I always spend money when I am in bad mood  |  |
| SI—Item 1 | If I receive the money, I'm willing to save them, because saving is important to me | (Te'eni-Harari 2016; Xiao et al. 2011; Widyastuti et al. 2016)       |
| SI—Item 2 | I will expend effort to save money for the future every month                       |  |
| SI—Item 3 | I plan to save money on unexpected expenses and to reduce my financial burdens      |  |
| SI—Item 4 | I don't think we need to save money for future use                                  |  |
| SI—Item 5 | I think saving is a means of achieving important long-term needs                    |  |
| SB—Item 1 | I save money from pocket money or part-time income                                  | (Bapat 2019; Sereetrakul et al. 2013; Potrich et al. 2016)           |
| SB—Item 2 | I use my saving spending on expensive products or other long terms goal             |  |
| SB—Item 3 | I keep saving for an emergency  |  |
| SB—Item 4 | I always do record for my expenses  |  |
| SB—Item 5 | I always save money by monthly basis  |  |
| SB—Item 6 | I used to save money to buy expensive products                                      |  |

*Note* FA: Financial Attitude; FS: Financial Socialization; FC: Financial Capabilities; FE: Financial Education; SC: Self-Control; SI: Saving Intention; SB: Saving Behaviour  
*Source* Author's data analysis

## 4 Data Analysis

**Demographic Characteristics.** Table 2 presents the data of demographics profile obtained from 307 Malaysian university students, which also included seven demographic questions, namely gender, age, ethnicity, marital status, educational background, average monthly income, and living area. A total of 166 (54.1%) respondents were female, while 141 (45.9%) respondents were male. Besides, 86 (28%) of the

**Table 2** Demographic characteristics

|                    | N   | %     |                                      | N   | %     |
|--------------------|-----|-------|--------------------------------------|-----|-------|
| <i>Gender</i>      |     |       | <i>Marital Status</i>                |     |       |
| Female             | 166 | 54.1  | Single                               | 298 | 97.1  |
| Male               | 141 | 45.9  | Married                              | 8   | 2.6   |
| Total              | 307 | 100.0 | Widowed                              | 1   | 0.3   |
|                    |     |       | Total                                | 307 | 100.0 |
| <i>Age Group</i>   |     |       | <i>Education</i>                     |     |       |
| Below 21 years     | 86  | 28.0  | Diploma/technical school certificate | 75  | 24.4  |
| 21–25 years        | 190 | 61.9  | Bachelor degree or equivalent        | 212 | 69.1  |
| 26–30 years        | 26  | 8.5   | Master’s degree                      | 19  | 6.2   |
| 31–35 years        | 3   | 1.0   | Doctoral degree                      | 1   | 0.3   |
| 41–45 years        | 1   | 0.3   | Total                                | 307 | 100.0 |
| 46–50 years        | 1   | 0.3   |                                      |     |       |
| Total              | 307 | 100.0 |                                      |     |       |
| <i>Ethnicity</i>   |     |       | <i>Average Monthly Income</i>        |     |       |
| Malay              | 63  | 20.5  | Below RM2500                         | 265 | 86.3  |
| Chinese            | 150 | 48.9  | RM2501-RM5000                        | 36  | 11.7  |
| Indian             | 31  | 10.1  | RM5001-RM7500                        | 4   | 1.3   |
| Others             | 63  | 20.5  | RM10,001-RM12500                     | 1   | 0.3   |
| Total              | 307 | 100.0 | More than RM12500                    | 1   | 0.3   |
|                    |     |       | Total                                | 307 | 100.0 |
| <i>Living Area</i> |     |       |                                      |     |       |
| Urban              | 229 | 74.6  |                                      |     |       |
| Rural              | 78  | 25.4  |                                      |     |       |
| Total              | 307 | 100.0 |                                      |     |       |

respondents were below 21 years old, with the highest amount of respondents ageing from 21 to 25 years old (61.9%). Furthermore, 26 (8.5%) respondents aged from 26 to 30 years old, while three (1.0%) respondents aged from 31 to 35 years old. Following that, 0.3% of the respondents aged from 41 to 45 years old and 46 to 50 years old. Among the respondents, 150 of them were Chinese (48.9%), while 63 respondents (20.5%) were Malay and originated from other ethnicities, while 31% of the respondents were Indian. Out of the respondents, 229 (74.6%) of them lived in an urban area, while the remaining 78 respondents (25.4%) lived in a rural area. The marital status for 298 of the respondents (97.1%) was single, while eight respondents (2.6%) were married, and one respondent (0.3%) has been divorced. The majority number of respondents, which was 212 (69.1%), obtained a Bachelor’s degree, while 75 (24.4%) of the respondents obtained a diploma or technical school certificate. Following that, 19 (6.2%) respondents and one (0.3%) respondent acquired a Master’s degree and doctoral degree. The average monthly income for

**Table 3** Reliability and validity

| Variables | No. Items | Mean  | SD    | CA    | DG rho | CR    | AVE   | VIF   |
|-----------|-----------|-------|-------|-------|--------|-------|-------|-------|
| FA        | 3         | 4.252 | 0.626 | 0.672 | 0.790  | 0.818 | 0.614 | 1.853 |
| FS        | 5         | 4.106 | 0.764 | 0.832 | 0.922  | 0.873 | 0.591 | 1.747 |
| FC        | 4         | 2.868 | 0.964 | 0.801 | 0.915  | 0.861 | 0.611 | 1.064 |
| FE        | 5         | 3.745 | 0.777 | 0.820 | 0.886  | 0.870 | 0.575 | 1.241 |
| SC        | 4         | 4.303 | 0.641 | 0.819 | 0.833  | 0.880 | 0.647 | 1.713 |
| SI        | 4         | 4.367 | 0.637 | 0.844 | 0.861  | 0.895 | 0.683 | 1.000 |
| SB        | 3         | 5.790 | 1.024 | 0.762 | 0.813  | 0.862 | 0.678 |       |

*Note* FA: Financial Attitude; FS: Financial Socialization; FC: Financial Capabilities; FE: Financial Education; SC: Self-Control; SAVI: Saving Intention; SAVB: Saving Behaviour; SD: Standard Deviation; CA: Cronbach’s Alpha; DG rho—Dillon-Goldstein’s rho; CR—Composite Reliability; AVE—Average Variance Extracted; VIF—Variance Inflation Factors

*Source* Author’s data analysis

university students of below RM2500 was obtained by 265 (86.3%) of respondents, followed by 36 respondents (11.7%), with income ranging from RM2501 to RM5000, while one respondent’s (0.3%) income ranging from RM10,001 to RM12,500 and over RM12,500.

**Reliability and Validity.** Table 3 presents the mean and standard deviation (SD) of all the variables. Financial capabilities and financial education were low in the mean section and high in the standard deviation section. Therefore, it was indicated that university students in Malaysia had similar perceptions about education on finance and financial capabilities, which also influenced the intention of their saving behaviour. According to Hair et al. (2019), the reliability of the study’s latent constructs could be achieved through Cronbach’s alpha (CA), DG rho, and composite reliability (CR). Based on Table 3, all the reliability values for Cronbach’s alpha were above 0.7, while the financial attitude presented the reliability of 0.672. Notably, this value is reliable and acceptable for this study. Apart from Cronbach’s alpha values, composite reliability was also calculated for reliability, which exceeded the cut-off point of 0.7. Besides, the Dillon–Goldstein rho values for all constructs exceeded 0.8, which further confirmed that the items were reliable and acceptable.

The average variance extracted (AVE) value was used to determine the convergent validity, which required a value of higher than 0.50 and above. As shown in Table 3, all the AVE values for all constructions were acceptable as they were higher than 0.50 and indicated the presence of convergent validity (Hair et al. 2017). Based on the examination of the variance inflation factors (VIF), all the variable values of the VIF were lower than 3.3 thresholds, which indicated the absence of multicollinearity issues, as shown in Table 3.

The evaluation of discriminant validity constructs was based on three methods including the Fornell-Lacker criterion, Heterotrait-Monotrait (HTMT), and cross-loadings. According to Hair et al. (2019), to gain discriminant validity, the AVE

value of the construct should amount to  $\geq 0.50$  for Fornell–Larcker criterion. Based on Table 4, all constructs exceeded the threshold value. It was also proven through the Heterotrait–Monotrait Ratio (HTMT) that the discriminant validity should be lower than 0.85 for each study construct.

The cross-loading method suggested that the outer loading of the construct should exceed the corresponding construct loading for the acceptable construct of discriminant validity. Based on Table 5, all item loadings amounted to  $\geq 0.7$ , except for FA item 3 (0.490), FS item 2 (0.447) and 3 (0.651), FC item 3 (0.695) and 4 (0.676), and FE item 1 (0.596). The items with standardised loadings of lower than 0.7 were reserved for further analysis, while some items with values below 0.5 were deleted.

**Path Analysis.** Table 6 presents the path coefficients of factors affecting saving intention, including the factors affecting saving behaviour. The path coefficients demonstrated that the coefficient value for financial attitude and self-control amounted to 0.208 and 0.536, respectively ( $p$ -value = 0.000 for both), which indicated a significantly positive impact on competitive advantage. The  $f^2$  values of 0.058 and 0.416 for both financial attitude and self-control indicated a small and significant impact on saving intention. Furthermore, the coefficient values for financial socialisation and financial education amounted to 0.118 ( $p$ -value = 0.014) and 0.002 (0.486), signifying that both factors had a significantly positive effect on the saving

**Table 4** Discriminant validity

| FA  | FS     | FC    | FE     | SC    | SI    | SB    |       |
|---|--------|-------|--------|-------|-------|-------|-------|
| <i>Fornell-Larcker Criterion</i>          |        |       |        |       |       |       |       |
| FA  | 0.783  |       |        |       |       |       |       |
| FS  | 0.597  | 0.769 |        |       |       |       |       |
| FC  | -0.087 | 0.086 | 0.782  |       |       |       |       |
| FE  | 0.346  | 0.319 | 0.010  | 0.758 |       |       |       |
| SC  | 0.563  | 0.508 | -0.125 | 0.408 | 0.804 |       |       |
| SI  | 0.591  | 0.505 | -0.193 | 0.329 | 0.729 | 0.826 |       |
| SB  | 0.529  | 0.541 | -0.111 | 0.324 | 0.630 | 0.619 | 0.823 |
| <i>Heterotrait-Monotrait Ratio (HTMT)</i> |        |       |        |       |       |       |       |
| FA  |        |       |        |       |       |       |       |
| FS  | 0.777  |       |        |       |       |       |       |
| FC  | 0.186  | 0.206 |        |       |       |       |       |
| FE  | 0.487  | 0.421 | 0.126  |       |       |       |       |
| SC  | 0.740  | 0.566 | 0.156  | 0.470 |       |       |       |
| SI  | 0.751  | 0.509 | 0.203  | 0.351 | 0.857 |       |       |
| SB  | 0.708  | 0.616 | 0.147  | 0.402 | 0.780 | 0.742 |       |

*Note* FA: Financial Attitude; FS: Financial Socialization; FC: Financial Capabilities; FE: Financial Education; SC: Self-Control; SI: Saving Intention; SB: Saving Behaviour

*Source* Author’s data analysis

**Table 5** Loadings and cross-loading

| Code      | FA     | FS    | FC     | FE     | SC     | SI     | SB     |
|-----------|--------|-------|--------|--------|--------|--------|--------|
| FA—Item 1 | 0.883  | 0.507 | -0.064 | 0.279  | 0.463  | 0.523  | 0.428  |
| FA—Item 2 | 0.906  | 0.528 | -0.157 | 0.241  | 0.540  | 0.557  | 0.514  |
| FA—Item 3 | 0.490  | 0.368 | 0.114  | 0.395  | 0.282  | 0.237  | 0.265  |
| FS—Item 1 | 0.552  | 0.852 | -0.015 | 0.276  | 0.474  | 0.522  | 0.520  |
| FS—Item 2 | 0.220  | 0.447 | 0.195  | 0.312  | 0.183  | 0.095  | 0.168  |
| FS—Item 3 | 0.316  | 0.651 | 0.192  | 0.373  | 0.247  | 0.177  | 0.317  |
| FS—Item 4 | 0.523  | 0.898 | 0.080  | 0.212  | 0.433  | 0.419  | 0.434  |
| FS—Item 5 | 0.534  | 0.895 | 0.089  | 0.251  | 0.471  | 0.466  | 0.493  |
| FC—Item 1 | -0.151 | 0.052 | 0.875  | 0.030  | -0.159 | -0.214 | -0.112 |
| FC—Item 2 | -0.052 | 0.067 | 0.859  | -0.044 | -0.138 | -0.152 | -0.108 |
| FC—Item 3 | 0.002  | 0.057 | 0.695  | -0.013 | 0.017  | -0.102 | -0.023 |
| FC—Item 4 | 0.036  | 0.149 | 0.676  | 0.089  | -0.016 | -0.067 | -0.081 |
| FE—Item 1 | 0.182  | 0.061 | 0.025  | 0.596  | 0.182  | 0.199  | 0.125  |
| FE—Item 2 | 0.258  | 0.170 | 0.038  | 0.771  | 0.323  | 0.238  | 0.166  |
| FE—Item 3 | 0.148  | 0.218 | 0.093  | 0.765  | 0.207  | 0.112  | 0.198  |
| FE—Item 4 | 0.219  | 0.272 | 0.054  | 0.800  | 0.237  | 0.189  | 0.241  |
| FE—Item 5 | 0.373  | 0.387 | -0.071 | 0.838  | 0.448  | 0.365  | 0.387  |
| SC—Item 1 | 0.478  | 0.477 | -0.038 | 0.467  | 0.777  | 0.525  | 0.545  |
| SC—Item 2 | 0.471  | 0.372 | -0.108 | 0.368  | 0.854  | 0.577  | 0.484  |
| SC—Item 3 | 0.499  | 0.456 | -0.162 | 0.180  | 0.823  | 0.702  | 0.564  |
| SC—Item 4 | 0.348  | 0.319 | -0.074 | 0.347  | 0.759  | 0.505  | 0.418  |
| SI—Item 1 | 0.514  | 0.460 | -0.188 | 0.265  | 0.673  | 0.880  | 0.552  |
| SI—Item 2 | 0.537  | 0.424 | -0.193 | 0.242  | 0.629  | 0.873  | 0.514  |
| SI—Item 3 | 0.488  | 0.481 | -0.138 | 0.319  | 0.614  | 0.835  | 0.577  |
| SI—Item 4 | 0.406  | 0.275 | -0.110 | 0.265  | 0.472  | 0.707  | 0.380  |
| SB—Item 1 | 0.319  | 0.295 | -0.042 | 0.369  | 0.401  | 0.352  | 0.683  |
| SB—Item 2 | 0.401  | 0.436 | -0.057 | 0.242  | 0.549  | 0.535  | 0.903  |
| SB—Item 3 | 0.553  | 0.560 | -0.154 | 0.238  | 0.580  | 0.599  | 0.867  |

*Note* FA: Financial Attitude; FS: Financial Socialization; FC: Financial Capabilities; FE: Financial Education; SC: Self-Control; SI: Saving Intention; SB: Saving Behaviour

*Source* Author’s data analysis

intention among Malaysian students. Accordingly, the  $f^2$  for both financial socialisation and financial education amounted to 0.020, which had a strong impact on saving intention, while the  $f^2$  for financial education amounting to 0.000 indicated the absence of impact on saving intention. However, financial capabilities demonstrated that the p-value of 0.001 with coefficient value = -0.118 resulted in a minor

**Table 6** Path coefficients

| Hypo                                      |         | Beta   | CI—Min | CI—Max | <i>t</i> | <i>p</i> | <i>r</i> <sup>2</sup> | <i>f</i> <sup>2</sup> | Q <sup>2</sup> | Decision |
|---|---------|--------|--------|--------|----------|----------|-----------------------|-----------------------|----------------|----------|
| <i>Factors Effecting Saving Intention</i> |         |        |        |        |          |          |                       |                       |                |          |
| H <sub>1</sub>                            | FA → SI | 0.208  | 0.112  | 0.304  | 3.685    | 0.000    |                       | 0.058                 |                | Accept   |
| H <sub>2</sub>                            | FS → SI | 0.118  | 0.037  | 0.216  | 2.207    | 0.014    |                       | 0.020                 |                | Accept   |
| H <sub>3</sub>                            | FC → SI | -0.118 | -0.174 | -0.058 | 3.166    | 0.001    | 0.593                 | 0.033                 | 0.359          | Accept   |
| H <sub>4</sub>                            | FE → SI | 0.002  | -0.069 | 0.075  | 0.036    | 0.486    |                       | 0.000                 |                | Reject   |
| H <sub>5</sub>                            | SC → SI | 0.536  | 0.439  | 0.619  | 9.624    | 0.000    |                       | 0.416                 |                | Accept   |
| <i>Factor Effecting Saving Behaviour</i>  |         |        |        |        |          |          |                       |                       |                |          |
| H <sub>6</sub>                            | SI → SB | 0.619  | 0.551  | 0.700  | 13.999   | 0.000    | 0.383                 | 0.622                 | 0.250          | Accept   |

*Note* FA: Financial Attitude; FS: Financial Socialization; FC: Financial Capabilities; FE: Financial Education; SC: Self-Control; SI: Saving Intention; SB: Saving Behaviour

*Source* Author’s data analysis

negative effect on saving intention. The *f*<sup>2</sup> value of 0.033 for financial capabilities denoted the presence of impact on saving intention.

The *r*<sup>2</sup> value for saving intention amounted to 0.593, signifying that 59.3% of the variance in saving intention could be represented through financial capabilities, financial attitudes, financial socialisation, financial education, and self-control. The Q<sup>2</sup> value of 0.359 indicated a value higher than 0, indicating that financial attitudes, financial socialisation, financial capabilities, financial education, and self-control had sufficient predictive relevance for saving intention. Moreover, the *r*<sup>2</sup> value of 0.383 suggested that a fraction (38.3%) of the variation in saving behaviour could be explained through saving intention. Given that the value of Q<sup>2</sup> 0.250 exceeded 0, it was implied that saving intention had a sufficient and moderate predictive relevance for the saving behaviour of Malaysian students (Table 6).

**Mediation.** Mediation refers to the mediating effect of saving intention on the relationship between FA, FS, FC, FE, and SC, and saving behaviour among Malaysian students. In the presence of saving intention, financial attitude, and self-control positively influence the saving behaviour of Malaysian students with the same *p*-value

**Table 7** Mediating effects

| Associations | Beta   | CI—Min | CI—Max | <i>t</i> | <i>p</i> | Decision |
|--------------|--------|--------|--------|----------|----------|----------|
| FA → SI → SB | 0.129  | 0.068  | 0.188  | 3.700    | 0.000    | Accept   |
| FS → SI → SB | 0.073  | 0.023  | 0.141  | 2.133    | 0.017    | Accept   |
| FC → SI → SB | -0.073 | -0.116 | -0.035 | 2.989    | 0.001    | Accept   |
| FE → SI → SB | 0.001  | -0.048 | 0.046  | 0.036    | 0.486    | Reject   |
| SC → SI → SB | 0.332  | 0.251  | 0.410  | 7.072    | 0.000    | Accept   |

*Note* FA: Financial Attitude; FS: Financial Socialization; FC: Financial Capabilities; FE: Financial Education; SC: Self-Control; SI: Saving Intention; SB: Saving Behaviour

*Source* Author’s data analysis

0.000 ( $\beta = 0.129$ ) and ( $\beta = 0.332$ ), respectively. Meanwhile, upon the presence of saving intention, financial socialisation and financial education exhibited significantly positive effect on saving behaviour with  $\beta = 0.073$  ( $p$ -value = 0.017) and  $\beta = 0.001$  ( $p$ -value = 0.486) respectively. However, the presence of saving intention and financial education led to a negative impact on saving behaviour (Table 7).

**Multiple Group Analysis.** Multiple group analyses were applied to determine the differences between the model based on sample ethnicity, gender, age, and living area. Table 8 demonstrates the path values for the two groups and the differences within the groups in terms of  $p$ -values (Morin et al. 2016).

**Gender-Based Groups.** The results of the two groups based on the gender of the sample demonstrated a significant difference in the relationship between financial education and saving intention. However, the gender difference did not affect the relationship of financial attitude, financial socialisation, financial capabilities, and self-control with the intention of saving. However, a significant difference was recorded for the gender attribute in the relationship between saving intention and behaviour.

**Group-Based on Living Area.** The results of the two groups based on the living area showed a significant difference in the relationship between financial socialisation and financial education towards saving intention and behaviour. However, no significant difference was highlighted for financial attitude, financial capabilities,

**Table 8** Multi-group analysis

|         | Female |            | Male   |            | Difference |            | Decision        |
|---------|--------|------------|--------|------------|------------|------------|-----------------|
|         | Beta   | $p$ -value | Beta   | $p$ -value | Beta       | $p$ -value |                 |
| FA → SI | 0.201  | 0.004      | 0.191  | 0.009      | 0.010      | 0.462      | No Difference   |
| FS → SI | 0.098  | 0.074      | 0.139  | 0.059      | -0.041     | 0.345      | No Difference   |
| FC → SI | -0.084 | 0.021      | -0.113 | 0.046      | 0.029      | 0.346      | No Difference   |
| FE → SI | 0.073  | 0.073      | -0.065 | 0.157      | 0.138      | 0.049      | Sig. Difference |
| SC → SI | 0.544  | 0.000      | 0.560  | 0.000      | -0.016     | 0.443      | No Difference   |
| SI → SB | 0.525  | 0.000      | 0.715  | 0.000      | -0.190     | 0.013      | Sig. Difference |
|         | Urban  |            | Rural  |            | Difference |            | Decision        |
|         | Beta   | $p$ -value | Beta   | $p$ -value | Beta       | $p$ -value |                 |
| FA → SI | 0.220  | 0.001      | 0.121  | 0.109      | 0.099      | 0.198      | No Difference   |
| FS → SI | 0.059  | 0.167      | 0.381  | 0.000      | -0.322     | 0.004      | Sig. Difference |
| FC → SI | -0.144 | 0.001      | -0.067 | 0.229      | -0.077     | 0.203      | No Difference   |
| FE → SI | -0.035 | 0.267      | 0.123  | 0.031      | -0.158     | 0.034      | Sig. Difference |
| SC → SI | 0.573  | 0.000      | 0.419  | 0.000      | 0.154      | 0.076      | No Difference   |
| SI → SB | 0.607  | 0.000      | 0.657  | 0.000      | -0.050     | 0.274      | No Difference   |

*Note* FA: Financial Attitude; FS: Financial Socialization; FC: Financial Capabilities; FE: Financial Education; SC: Self-Control; SI: Saving Intention; SB: Saving Behaviour

*Source* Author’s data analysis



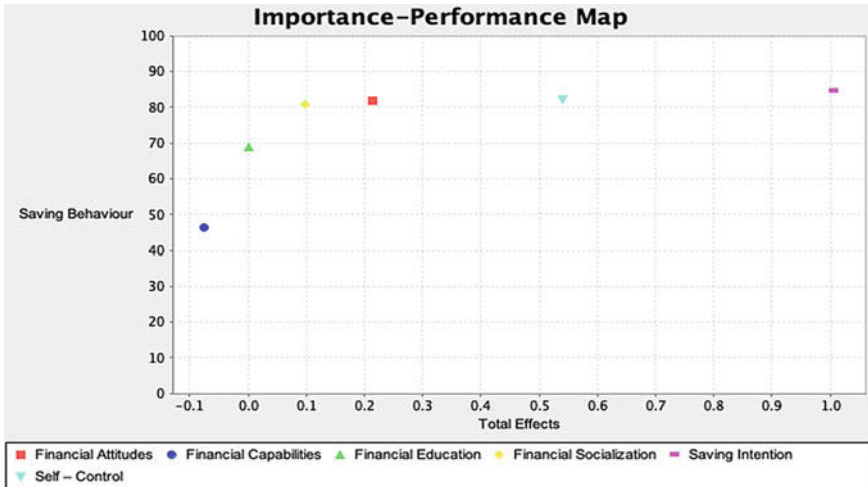


Fig. 1 Saving behaviour and total effects

and self-control towards saving behaviour and intention. Moreover, no significant difference was present in the relationship between saving intention and behaviour.

**Importance-Performance Matrix Analysis (IPMA).** The IPMA was applied for the SI and SB as the target constructs. The importance score refers to the total effect values, while performance values indicate the level of performance of the constructs, as shown in Fig. 1. IPMA scores ranged from 0 (low performance) to 100 (highest performance). The findings showed that FS, FA, and SC are the outmost significant determinants that could impact the SI and SB.

## 5 Discussions

In this research, it was proven that financial attitude, financial socialisation, financial capability, and self-control had a positive and significant effect on saving intention and behaviour among university students in Malaysia. However, financial education did not have a significant impact on these two elements. Empirical results supported the proposed assumptions and validated the use of the extended TPB model. Furthermore, the findings presented a significant, positive, and direct effect of perceived benefit on saving behaviour and intention among university students in Malaysia. Based on the analysed results, sufficient evidence was present to conclude that financial attitude has a notable relationship with saving intention and behaviour among university students in Malaysia. This hypothesis ( $H_1$ ) was supported in the study by Widyastuti et al. (2016) and (Sharif and Naghavi 2020), which presented a positive effect of financial attitude on saving intention and saving behaviour. Given the

finding that students with a higher level of financial attitude had more possibilities to save money, the financial attitude was accepted. It was also found that a positive relationship was present between financial socialisation and saving intention and behaviour. This hypothesis ( $H_2$ ) was in line with the studies by Damian et al. (2020) which have shown the connection between students' healthy financial behaviour and perceptions of past and present parental financial socialisation. Besides, studies of Sharif and Naghavi (2020) supported the above hypothesis through the finding that parents had a significant influence on children's saving behaviour. The study of Xiao and Porto (2017) presented the assumption that students should have a stronger intention to perform positive financial behaviour if the parents had more possibilities to approve positive financial behaviour. Therefore, financial socialisation was necessary for guiding and encouraging children to save.

This finding found a positive effect on financial capability on saving intention and saving behaviour of the university students in Malaysia, which was accepted by the hypothesis ( $H_3$ ). The result was consistent with the study by Gudmunson and Danes (2011), which demonstrated the positive effect of financial capability on saving behaviour. Meanwhile, similar to the outcome of the hypothesis ( $H_4$ ), the hypothesis of financial education on saving intention and saving behaviour among university students in Malaysia was rejected. Overall, the result indicated that financial education does not have a significant effect on saving intentions and behaviour. Self-control was found to have a significant and positive effect on the saving intention and behaviour among university students in Malaysia, thus hypothesis ( $H_5$ ) was accepted. The study by Strömbäck et al. (2017) recorded that self-control had a positive effect on general financial behaviour although the effect was minor in the general financial behaviour compared to savings behaviour. It was also found that hypothesis ( $H_6$ ), the saving intention, had a significant positive effect on the saving behaviour among university students in Malaysia. The hypothesis testing by Puspasari et al. (2018) recorded the positive and significant influence of the intention to behave on saving behaviour among students. Meanwhile, the results by Satsios and Hadjidakis (2018) proved that intention had a significant positive direct effect on saving behaviour, leading to the acceptance of the hypothesis ( $H_6$ ).

## 6 Implications

This study examined the effect of financial attitude, financial socialisation, financial capability, financial education, and self-control on saving intention and behaviour. This aspect significantly enhanced saving behaviour by offering a real-world manifestation of the effects of TPB constructs on saving intentions. This study result supported the TPB model by highlighting that the intention for building financial attitude, financial socialisation, financial capability, financial education, and self-control had significantly positive effects on saving behaviour. The findings of this study demonstrated that financial attitude and financial capability had a significant relationship with saving intention and behaviour of university students in Malaysia.

Therefore, the study presented implications for financial policy, highlighting the important factors that influenced saving attitude and behaviour among students. Governmental, legislative, and regulatory authorities should consider financial attitude a factor in improving public saving indices. Besides, the government and relevant units should consider the methods to influence financial attitude by increasing students' saving behaviour, savings among the poor, well-being, and economic and financial stability in general.

The result of this study indicated that financial socialisation has a significant relationship with saving intention and saving behaviour among university students, hence replicating parental advice and behaviour as they grow older. When parents practise healthy saving behaviour, students would make careful management of money or vice versa. Therefore, parents need to be aware of their influence on their children and practise careful saving behaviour. The implications of the present results were present in supporting healthy financial behaviours and satisfaction in university students. Accordingly, parents could assist the children by displaying and modelling healthy saving behaviours, showing interest in their children's spending habits and monitoring them. Parents should also continue supporting their children by gathering financial knowledge, fostering a healthy financial relationship with them, and providing them with informative money advice. Besides, retail banks should offer more attractive savings schemes to encourage savings among parents as their financial attitude and behaviour are largely followed by their children. Thus, retail banks can indirectly attract student savers through the behaviour of their parents.

The results of this study indicated that self-control had a significant relationship with saving intention and saving behaviour among university students, including practical implications for students' financial awareness. The impact of self-control on saving intention and saving behaviour was believed to increase the perception of traders (e.g., banks or retailers) about the value and benefits, in which self-control could delay their immediate gratification and prevent impulsive spending. Besides, educators should understand that self-control is important for students to perform sound financial management, while financial education programmes should focus on assisting the students in establishing the strategies to retain self-control over money.

## **7 Conclusions**

For the overall conclusion, this research aims to investigate the saving intention and behaviour among different university students in Malaysia. Savings are directly linked to student financial issues and financial awareness, while financial awareness of university students is critical for economic growth in Malaysia. Accordingly, the study explored the effects of financial attitude, financial socialisation, financial capability, financial education, and self-control on saving intention and behaviour among university students in Malaysia. The findings of this research have proven that financial education does not have a significant impact on saving intentions and

saving behaviour. Besides, all factors have a positive and significant impact on saving intention and behaviour among university students in Malaysia.

Several limitations of this study are present, followed by recommendations for future research. This study selected 307 respondents from Klang Valley, given that other regions were not included due to geographical constraint and time limitation. However, the small sample size for this study might not lead to accurate results. The data were collected using the online questionnaire method, which could lead to honesty and reliability issues faced by respondents upon answering the research questions. Therefore, further research is recommended to investigate saving behaviour among different university students in Malaysia instead of limiting it to Klang Valley, followed by expansion of sample size based on additional research time. In conclusion, future researchers should confirm, replicate, or extend this study by integrating additional constructs to the model or employing the model in different gender, ages, cultures, ethnicities, or geographical settings to enhance the understanding of saving intention among university students in Malaysia.

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# The Importance and Evaluation of Resilience Leadership Capability in Managing University: An Understanding



I. Noor Azizi, A. S. Roselina, P. P. Yukthamarani, and W. A. Wan Azlee

**Abstract** Leading a public university is unlike managing a corporate organisation. The landscape of a university differs not only in the core business of disseminating knowledge, but university of today and the future is required to sustain in terms of financial, ability to generate certain amount of income, producing high research impact and innovative products that can be churned into commercialisation activities and money; and applying technology in teaching and learning, and work methods. Thus, the needs for a public university to have Vice Chancellors of certain qualities and abilities beyond academic standing is crucial in the next decade. Hence, this research proposal aims to examine a new requirement of a leader in the public universities of Malaysia that is known as resilience leadership. Resilience leaders are referred as leaders who are able to lead in unpredictable environment and be able to cope with the rapid changes within the the criteria and elements that constitute in resilience industry. Since, resilience leadership has not received much attention in the context of higher education industry, therefore it is timely for this study to examine the key elements that constitute to the new 'breed' of leaders in managing the dynamic public universities in Malaysia. The study will focus on leadership capability of the Vice Chancellors in leveraging diversity and change to thrive public universities to greater heights. The outcomes of this study is towards development of university resilience leadership quality framework, positioning leadership in the context of education industry. In addition, the findings will have policy implication on the future university leaders, succession planning programmes and measure for effective resilience leadership which can benefit the Ministry of Higher Education, AKEPT, and universities' talent development centres.

**Keywords** Resilient leadership · Higher education

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I. N. Azizi · A. S. Roselina · P. P. Yukthamarani (✉)

Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, City Campus, 16100 Kota Bharu, Kelantan, Malaysia  
e-mail: [yuktha@umk.edu.my](mailto:yuktha@umk.edu.my)

W. A. W. Azlee

Center of Computing and Informatics, Universiti Malaysia Kelantan, City Campus, 16100 Kota Bharu, Kelantan, Malaysia



# 1 Introduction

The landscape of future higher education institutions demand for leaders who are agile, technology oriented, innovative and business oriented. The chaos environment such as the business environment (Rubin 2018) is predicted by the present researchers to be the same for education industry as universities are accountable to numerous stakeholders within its supply chain—from students and parents to government, resources suppliers, industries and communities. Thus, learning to become a leader in a university can be a complex, and a multidimensional task. It takes self-discipline to build positive beliefs and positive inner principles and values towards the mission and vision of the organizations (Syed et al. 2017). In addition, issues pertaining to university leaders' selection criteria and selection process, succession planning, training and development, and measuring effectiveness of university leaders must be reviewed to address the requirements for the new 'breed' (or agile) of leaders for the future universities. Hence, it is the intention of this study to examine the requirement for resilience leadership that is believed to be relevant to university leaders or managers to execute his/her leadership in a multifaceted and agile education environment (Brewer et al. 2019).

Many people experience great discomfort in situations involving unpredictability and change; business leaders and organizations are not immune to the impact of these stressors. Leading an organization involves tackling a myriad of challenges in an ever-changing and fluid business environment (Brewer et. al. 2019). Challenges include managing stakeholders and internal politics, competition for resources, fluctuations in the economy, changes in regulations, technology and data security, new rivalries in the marketplace, hiring and retaining skilled and dedicated employees, among many others (Sirat et al. 2012). Such situation is not isolate for the present and future university environment.

Resilience has been associated with multiple expressions of flexibility including: knowing how to accept situations which cannot be changed, having the capacity to switch between different modes of thought and coping mechanisms, learning from failure, and finding meaning, opportunity, and the potential for growth in the context of adversity (“Resilient Leadership: Navigating the Pressures of Modern Working Life”, 2014). Thus, resilient leaders should not be satisfied with the status quo, and should continually ask, “How can we improve?”. Leaders and organizations often face challenges and crises that test the strength and flexibility of their systems and resources. Will they bend with stress or will they break? Successful leadership has always been more difficult during periods of rapid change but the unique stressors facing organizations throughout the world today has caused a renewed interest in studying personal and organizational behaviours with a focus on what constitutes effective and adaptive leadership (Duggan and Moyer 2009). Interestingly, some leaders and organizations not only survive, but also thrive in these situations while others falter or collapse under the stress of change.

A study conducted by Veer Ramjeawon and Rowley (2017) suggested that universities in developing countries, including Malaysia, were aware of the need for good

knowledge management. However, many universities are facing great challenges of inefficient management. There has been issues on knowledge loss mainly through inefficient documentation and operating procedures that leads to delayed decision making and poor organisational performance (Mvula 2018). In addition, there are certain barriers to effective leadership due to lack of appropriate strategies and cultures including lack of time, lack of understanding of knowledge management benefits, lack of funding and lack of senior management support including unclear strategy, weaknesses of information communication technology support, and unsure of information demand (Singh and Kant 2008). This scenario describes the challenges and dynamism of the university environment which requires strong resilient among the university leaders.

Much research and thought have gone into understanding the factors that underlie these differences. We focus on the dynamic process of resilience as it applies to individuals as leaders and how leaders interact with organizations to affect stability, growth, and positive change in the face of crisis (Nielsen and Faber 2019). What are the dimensions of resilience and why do some leaders adapt and sometimes grow even stronger following crisis?

Resilient leaders in universities are believed to be good observers and diagnosticians, be able to interpret performance data, and be able to encourage adaptive change with speed is the essence. By intervening and orchestrating change that addresses current problems and anticipating future requirements would allow the university to be innovative and responsive to challenges and changes. This study, thus inspires to evaluate the level of resilient qualities among the present VCs with the enthusiasm to suggest a new framework for leadership qualities and development known as Resilient Leadership Qualities which deemed to be crucial for higher education industry.

## 2 Literature Review

According to Robinson et al. (2008), an effective leader uses information and knowledge to formulate decisions. The decision-making strategies among leaders are influenced by their personal values, experiences and beliefs that are central to the decision-making process. These strategies are parts of the intellectual processes and, surely involve the combinations of tacit and explicit knowledge. The decision-making process reflects a type of thinking, analysing, and problem-solving skills that enable leaders to recognise alternative solutions from the various data, information and knowledge (Boulgarides and Cohen 2001). Countries, communities, organisations and individuals are all subject to a diverse and ever changing environment. The threats that this sometimes turbulent environment poses can vary in both severity and frequency and may originate internally or externally to a system.

The research literature on managers and managerial work has relevance for understanding the challenges of leadership development. Due to current transformations of managerial roles toward being more fluid and flexible, it is increasingly relevant

to focus on broader capacities. Contemporary research has shown that managerial work is increasingly complex, with an expanding range of rapidly shifting tasks and relationships (Lord and Hall 2005). A number of surveys and case studies in Europe and North America have shown that change such as delayering, outsourcing, and more flexible and ad hoc organization structures has been revamped.

Leaders in public universities face several challenges because of the dual responsibilities between meeting academic and community needs. While the academic needs are obvious, the community needs are more complex. One of the community responsibilities is to meet the industrial needs, for example, through commercialisation activity where knowledge created in the university needs to be shared with the industrial counterparts for profit generation. This commercial need is perceived as contradicting the conventional roles of a university in creating a knowledge society through advanced teaching services, scientific research and producing knowledgeable graduates (Nonaka 1994). There is, however, an increasing need for public universities to look for new funding sources and to generate their own income (Kennedy and Blackman 2009). To accommodate these needs, the strategic objective of gaining commercial advantages is another important mission indicated by universities (Ab. Aziz et al. 2012). Thus, university leaders are required to develop a new set of skills and be more resilient to influence a culture that can optimise the knowledge asset and be more commercially driven.

Resilience thinking provides a useful entrée into the challenges and implications of change in institutions (Gunderson and Holling 2002; Anderies et al. 2004, 2006). Three central features of resilience are identified: (1) the ability of a system to absorb or buffer disturbances and still maintain its core attributes; (2) the ability of the system to self-organize; and (3) the capacity for learning and adaptation in the context of change. Walker et al. (2002) further describe resilience as the potential of a system to remain in a particular configuration, and maintain feedbacks, functions, and an ability to reorganize following disturbance-driven change. As a framework for analysis, resilience can provide a measure of the amount of disturbance that will cause a system to shift from one set of mutually reinforcing processes and structures to some alternative set of processes and structures (Holling 1996). The concept of resilience, therefore, can be helpful when attempting to identify the likelihood of shifts or transitions among different system configurations (Peterson 2000).

Jackson and Daly (2011), resilient leaders not only have the ability to thrive in the face of adversity, but they also have the ability to model behaviour that will help their subordinates thrive. They also questioned why adversity and resilience are rarely emphasised in regard to academic leaders, despite the fact that academic leaders work in an environment with significant workplace obstacles. As per suggested in Fig. 1.

The above framework will govern the entire research. The framework was developed based on Ginsburg (2014) and Duggan and Theurer (2017). The implication of this framework is to substantiate the importance of the RL criteria and to what extent the incumbent VCs of the public universities in Malaysia possess those five (5) resilience leadership qualities. From the framework, the hypotheses will be able to develop to test the relationships of the variables studied. The assumption that underlies this research is that—should the VC be able to survive a crisis and thrive



**Fig. 1** Suggested framework

the uncertainty of the environment, and able to create a healthier and productive workforce, hence he or she is known to have strong resilience characters. Two main hypotheses will govern the development of the RLQ model as follows:

1. The resilience leadership criteria are significantly influence the five (5) resilience leadership qualities among the VCs.
2. The five (5) resilience leadership qualities are significant to foster resilience environment.

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# Teachers' Acceptance and Readiness in Using Google Classroom in Secondary Schools in Malaysia



Nor Masharah Husain , Nur Farah Hana Musa,  
and Muhamad Hariz Muhamad Adnan 

**Abstract** This survey was carried out to identify levels of acceptance and teachers' perceptions of the implementation of Google Classroom in the process of learning and facilitation. Specifically, this study focused on examining the levels of knowledge, implementation skills, and teacher's readiness to use Google Classroom. This study was based on the quantitative approach using a survey methodology. The research instrument was based on a questionnaire consisting of five-point Likert scale. The study sample comprised 106 teachers who were randomly selected from several schools in Malaysia. Descriptive analysis was used to analyze respondents' responses in terms of frequency and percentage. The findings revealed that a majority of teachers were found to have positive perceptions of the usefulness of this application. They also demonstrated high levels of acceptance and readiness to use such an application in their teaching practices. However, some respondents demonstrated some reservation in using Google Classroom, which could be attributed to a lack of infrastructure, technical assistance, and expertise or knowledge to support virtual learning in their schools. As such, relevant agencies or parties must address these problems by providing such schools with sufficient infrastructure, reliable technical support, and specific training to ensure Google Classroom could be used as a tool to create online virtual learning environments in which teachers can teach and students can learn engagingly and interactively.

**Keywords** Google classroom · Teachers' perceptions · Secondary schools

## 1 Introduction

In this information-driven twenty-first century, the use of virtual learning has become so pervasive, with almost all nations have been using such a novel learning approach in their education systems. Such a development is hardly surprising given that technical advancements have resulted in many changes in all spheres of the human life,

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N. M. Husain (✉) · N. F. H. Musa · M. H. M. Adnan  
Department of Computing, Faculty of Art, Computing and Creative Industry, Universiti Pendidikan Sultan Idris, Tanjung Malim, Malaysia  
e-mail: [masharah@fskik.upsi.edu.my](mailto:masharah@fskik.upsi.edu.my)

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967

such as education. A case in point is the continual changes in education that are taking place in tandem with new technological developments. Over several decades, Information and Communication Technology (ICT), notably the Internet, has been widely used in education to improve the delivery and presentation of academic materials, making the teaching and learning process more efficient and effective (Webb et al. 2017). Recognizing the immense benefits accorded by ICT, the Malaysia government, through the Ministry of Education, has undertaken a number of efforts to harnessing the use of a vast array of new, novel technologies that can certainly help improve and enhance the teaching and learning process in such as learning management system (LMS) platform.

In concert, such technologies can help teachers and students improve the teaching and learning practices, respectively (Dash 2019; Webb et al. 2017). In particular, the connectivity through the Internet has drastically changed the educational landscape, effectively serving as a huge virtual library where users can gain access to an infinitely unlimited, diverse information. Globally, the numbers of Internet users have been rapidly growing in billions. For example, according to the Malaysian Communication and Multimedia Commission (MCMC), the number of Internet users in Malaysia has continually to surge, with the number of users in a particular year being far greater than the preceding years. For example, in 2018, there were more than 28.7 million Internet users in Malaysia, as highlighted by a report released by MCMC (2019). In response to technological advances, the educational realm has embraced a new paradigm shift that witnessed the learning process being driven by ICT-based applications and systems. In recent years, the Ministry of Education of Malaysia has embarked on several efforts to infuse elements of ICT in teaching and learning (KPM 2015).

Such efforts were made in response to the Malaysia's Educational Development Plan 2015–2015 (PPPM), stipulating that teaching should be enhanced with the latest technology to help elevate the nation's educational standing to that of develop nations. Arguably, virtual learning can be accessed by students anytime, anywhere for as long as they have internet access. In today's highly connected world, almost all students have unlimited access to a dazzling array of technologies that can shape their learning experiences, making learning not only efficacious but also entertaining. Taking the cues from a speech of the then Malaysia's Minister of Education YB Dr Mazlee (2019), the ministry has taken various steps to help teachers improve their teaching practices that can help realize a new generation of society called Society 5.0, whose new societal values are technology-driven and human-centric. With the participation of three major Internet Service Providers (ISPs), namely Telekom Malaysia Berhad, Celcom Axiata Berhad, and Maxis Broadband Sdn. Bhd., the ministry had launched the use of Google Classroom to 10,211 primary and secondary schools throughout Malaysia, effectively replacing the use of Frog VLE System (which was introduced with the assistance of 1BestariNet) that ceased its operation effective July 1, 2019 (KPM 2019).

Since then, Google Classroom has seen a sharp increase in its use encompassing all levels of education in Malaysia, including primary schools. Essentially, this kind of virtual learning provides a web-based platform that teaching practitioners, especially

teachers, can use to conduct not only online learning but also other aspects of teaching management, such as monitoring student attendance, grading students' works, and counseling students. In addition, students' parents can also monitor their children's learning activities, thus helping the former to keep track of the latter's progress. Through this kind of engagement involving teachers, students, and parents, learning becomes a shared responsibility that can help students to learn with greater ease and motivation. In a nutshell, Google Classroom can help create learning environments that mirror physical conventional learning albeit in a virtual form (Alim et al. 2019; Kumar et al. 2020). Since its introduction as a virtual learning platform, Google Classroom has been equipped with a host of features that support interactive virtual classrooms in which students can learn as efficacious as learning in the physical environments. Given this positive development, it becomes the imperative of every school in Malaysia to utilize Google Classroom to help facilitate the teaching and learning process, especially outside the formal classrooms, which can further enrich students' learning experiences.

## 2 Literature Review

### 2.1 *Web Based Learning*

Collectively, technologies has become an indispensable tool that users have to rely on to perform a wide range of activities. According to Stella (2020), the use of a vast spectrum of technologies, especially the Internet, has made a huge impact on various levels of student learning. For example, students can now learn at any time convenient to them no matter where they are. From the educational standpoint, students have to harness a wide range of educational applications or systems to help them learn more efficaciously. In the educational realm, the use of web-based learning also can be called learning management system (LMS) technology has become pervasive, allowing students learn at any time and any place (Dash 2019; Faridah and Afham 2017). This is not unexpected given that such an approach helps make student learning more engaging, effective, and meaningful – attributes that are needed in the twenty-century learning. In principle, web-based teaching and learning provides a new alternative in delivering educational contents to students digitally. In particular, LMS environments help expose students to various aspects of developments in education, which in turn helps students to develop creative skills, communication skills, and interpersonal skills, all of which contributes to helping them to understand a learning context in which learning occurs.



## 2.2 *Virtual Learning*

In essence, virtual learning is a web-based online platform designed to help teachers teach in a virtual environment, which has been made accessible to many students as the technology continues to improve (Arumugam and Mohan 2018; Dash 2019). For example, the advancements in the Internet and computer technology enable users to seek and have access to relevant information with improved efficiency and precision. In the literature, many terms to describe virtual learning have been used by researchers, some of which are quite vague, thus making it difficult to exactly pinpoint the most precise definition (Mkrttchian et al. 2019; William and Amanda 2018). To date, terms such as virtual learning, technology-based learning, online learning, and multimedia-based learning are some of the terms widely used by many researchers. Obviously, there are subtle differences between these definitions, depending on specific learning context in which certain elements of technology are used. Virtual learning also refers to online learning that entails students to be highly flexible and independent to understand specific learning such as to enable them to think creatively and innovatively. On the other hand, virtual learning also referred as student-centered learning that help students learn critically and creatively (William and Amanda 2018).

## 2.3 *Google Classroom*

Over the year, a host of technologies has become more accessible and affordable to users, which has significantly affected the ways in which children play, socialize, and communicate. Put simply, the advancements of ICT have drastically impacted almost every domain, such as social, economy, and education. From the educational perspective, these impacts will have a significant impact student learning. Taking cognizance of these impacts, Malaysia Ministry of Education has undertaken several proactive measures to formulate plans to guide the developments of its educational system to be in line with the latest technological developments. As such, as part of such measures, the ministry has mandated the use of Google Classroom as an alternative virtual learning platform, effectively replacing its predecessor, Frog Vle, which came into effect on July, 2019. This new virtual learning platform can also help motivate students to explore new technologies in this information-driven era. To expedite the use of Google Classroom, students have been given user identity (ID) and passwords to gain access to features on online learning of this platform.

As highlighted in the Google's official website, Google Classroom is a freely available learning productivity tool that provides several important features to support online learning, such as emails, forums, and document management, among others. With Google Classroom, teachers can easily perform their teaching activities that help improve time management, classroom management, and interaction and communication between teachers and students (Albashtawi and Al Bataineh 2020; Alim et al.

2019; Apriyanti et al. 2018; Kumar et al. 2020). Equally important, students and teachers can easily communicate either in the classroom or outside the classroom, the impact of which would help students learn with greater ease and excitement (Abazi-Bexheti et al. 2018; Heggart and Yoo 2018). This notion is made not without evidence as the findings of several studies, including research of Alim et al. (2019), showed that students were able learn using Google Classroom as equally effective as when they learned in the classroom.

## ***2.4 The Use of Google Classroom***

Admittedly, compared to some of the developed nations, the use of Google Classroom is a recent development in Malaysia's educational system. Arguably, the perceptions of various stakeholders on the use of this novel virtual learning platform would be diverse, which in turn may influence their acceptance of using it. This means that levels of users' acceptance would differ significantly based on the perspectives that they hold on to. Arguably, teachers' perspectives are the most influential factor that influences the acceptance of this virtual learning platform as they are the key players in the implementation of Google Classroom. In general, a number of studies have shown that a majority of teachers have been found to be receptive to the idea of using such an online learning platform. For example, Azhar and Iqbal (2018) observed that most teachers were quite keen to implement Google Classroom in their classrooms, which was amply demonstrated by their online activities involving various aspects of teaching and learning, such as uploading students' assignments, managing the classroom, and communicating with students (Kumar et al. 2020; Heggart and Yoo 2018 and Apriyanti et al. 2018). However, these findings showed that teachers' use of Google Classroom was limited only to the basic features of Google Classroom to help them perform the basic teaching routines.

One of the features that most teachers found helpful was the ability to upload learning materials (Apriyanti et al. 2018), such as teaching notes or presentation slides, which students could use to gain a better understanding of what they had learned previously. Essentially, this feature allows students to gain access to information sources that they use for revision purposes that helps reinforce their understanding of principles or concepts that they have learned in the classroom. The findings also showed that most teachers believed that this online learning platform helped facilitate their interactions with their students outside the formal learning hours (Azhar and Iqbal 2018). Surely, there are other features of this novel application that teachers can explore and use to further improve their teaching practices. As such, training should be enforced to help teachers learn to use the advanced features of Google Classroom, which can take their teaching practices to a higher level of performance.

### 3 Research Methodology

This study was based on the quantitative approach using the quantitative survey in which a questionnaire was used to elicit teachers' perceptions of their acceptance of the use of Google Classroom for the teaching and facilitation process. The letter of permission to conduct the study is also addressed to the school and the teachers before conducting the study. The schedule for appointments has been given to the respondents so that it is easy to conduct the study according to the suitability of the respondents working time. Respondents involved will be informed about the main aspects and objectives of the study to obtain the required data.

The instrument used in this study is in the form of a questionnaire that has gone through a validation phase with experts. This instrument is important to use in the data collection process to answer the objectives and questions of the study as mentioned earlier. Questionnaire instruments were considered appropriate in the field of education for data collection purposes. The questionnaire consisted of four parts as follows: Part A (Respondents' demography), Part B (Teachers' acceptance of Google Classroom), Part C (Teachers' perceptions of the implementation of Google Classroom), and D (Teachers' readiness to use Google Classroom). Part B, Part C, and Part D of the questionnaire consisted of 15, 16, and 8 items, respectively, which were rated along a 5-point Likert scale, ranging from '1' (Strongly disagree) to '5' (Strongly agree).

The simple random sampling was used to select 106 school teachers from several schools type form different state in Malaysia as the survey respondents. The rationale of this study was conducted randomly because the movement control order (MCO) was implemented by the government causing the study to be conducted online only because it could not be face to face with the teachers. However, all the procedures that have been set in conducting the study on teachers and schools have been completed and also stated to the respondents before the study form was distributed to respondents using google form platform via online.

Descriptive statistical analysis of the survey data was carried out using the Statistical Package Social Science (SPSS). Data analysis from the questionnaire was done through the process of frequency distribution to show the frequency and percentage. The findings of this feasibility study would help the researchers to plan for the undertaking of a major study that focuses on examining teachers' knowledge of the use of this novel virtual learning platform.

## 4 Findings

### 4.1 Levels of Teachers' Acceptance of the Implementation of Google Classroom in The Teaching and Facilitation Process

Part B of the questionnaire consisted of 15 items to elicit teachers' perceptions of acceptance of the implementation of Google Classroom in the teaching and facilitation process. Table 1 summarizes the descriptive statistics of teachers' responses in terms of frequency and percentage regarding their perceptions of acceptance of Google Classroom.

**Table 1** Descriptive statistics of teachers' perceived acceptance of the use of Google Classroom

| No | Items   | Frequency (f) |             |             |             |             |
|----|---|---------------|-------------|-------------|-------------|-------------|
|    |   | Percentage    |             |             |             |             |
|    | Scale   | 1             | 2           | 3           | 4           | 5           |
| 1  | Google Classroom is useful in the learning process                                    | 1<br>0.9%     | 4<br>3.8%   | 24<br>22.6% | 49<br>46.2% | 28<br>26.4% |
| 2  | Google Classroom is easy to learn   | 1<br>0.9%     | 13<br>12.3% | 22<br>20.8% | 53<br>50%   | 17<br>16%   |
| 3  | Google Classroom does not require large storage space                                 | 0             | 3<br>2.8%   | 26<br>24.5% | 48<br>45.3% | 29<br>27.4% |
| 4  | Google Classroom needs specific storage space   | 0             | 2<br>1.9%   | 22<br>20.8% | 53<br>50%   | 29<br>27.4% |
| 5  | Google Classroom makes it easy for me to provide training to my students              | 1<br>0.9%     | 6<br>5.7%   | 26<br>24.5% | 47<br>44.3% | 26<br>24.5% |
| 6  | Google Classroom facilitates virtual interactions between me and my students          | 2<br>1.9%     | 17<br>16%   | 23<br>21.7% | 47<br>44.3% | 17<br>16%   |
| 7  | Google Classroom is easy to access through multiple platforms                         | 1<br>0.9%     | 14<br>13.2% | 27<br>25.5% | 48<br>45.3% | 16<br>15.1% |
| 8  | I like using Google Classroom because it can be accessed anywhere                     | 2<br>1.9%     | 14<br>13.2% | 28<br>26.4% | 42<br>39.6% | 20<br>18.9% |
| 9  | Google Classroom enables me to upload all the teaching notes for my students          | 3<br>2.8%     | 1<br>0.9%   | 25<br>23.6% | 51<br>48.1% | 26<br>24.5% |
| 10 | File management and learning are more efficient through the use of Google Classroom   | 2<br>1.9%     | 6<br>5.7%   | 27<br>25.5% | 54<br>50.9% | 17<br>16%   |
| 11 | I can explain learning concepts more specifically through the use of Google Classroom | 3<br>2.8%     | 11<br>10.4% | 32<br>30.2% | 47<br>44.3% | 13<br>12.3% |
| 12 | Google Classroom enables me to discuss with my students easily                        | 5<br>4.7%     | 14<br>13.2% | 31<br>29.2% | 44<br>41.5% | 12<br>11.3% |

(continued)

**Table 1** (continued)

| No | Items   | Frequency (f)<br>Percentage |             |             |             |             |
|----|---|-----------------------------|-------------|-------------|-------------|-------------|
|    |   | 1                           | 2           | 3           | 4           | 5           |
| 13 | Google Classroom is a simple application that can be accessed with the use of mobile phones   | 1<br>0.9%                   | 8<br>7.5%   | 16<br>15.1% | 52<br>49.1% | 29<br>27.4% |
| 14 | I am able to check the calendar to view the activities to help me plan my teaching activities | 2<br>1.9%                   | 5<br>4.7%   | 20<br>18.9% | 55<br>51.9% | 24<br>22.6% |
| 15 | Google Classroom helps me to prepare my daily teaching plans                                  | 1<br>0.9%                   | 13<br>12.3% | 30<br>28.3% | 45<br>42.5% | 17<br>16%   |

### 4.2 Teachers’ perceptions of the implementation of Google Classroom

Table 2 summarizes the findings of the analysis of the teachers’ perceptions of the implementation of Google Classroom in the teaching and facilitation process.

**Table 2** Teachers’ perception of the implementation of Google Classroom

| No | Items  | Frequency (f)<br>Percentage |             |             |             |             |
|----|--|-----------------------------|-------------|-------------|-------------|-------------|
|    |  | 1                           | 2           | 3           | 4           | 5           |
| 1  | Google Classroom helps improve my productivity as a teacher  | 1<br>1.9%                   | 7<br>6.6%   | 21<br>19.8% | 57<br>53.8% | 19<br>17.9% |
| 2  | Google Classroom helps improve my students’ productivity   | 3<br>2.8%                   | 13<br>12.3% | 37<br>34.9% | 42<br>39.6% | 11<br>10.4% |
| 3  | Google Classroom helps me save time in planning my teaching activities                             | 2<br>1.9%                   | 11<br>10.4% | 36<br>34%   | 42<br>39.6% | 15<br>14.2% |
| 4  | Google Classroom helps improve the effectiveness of my teaching activities                         | 3<br>2.8%                   | 10<br>9.4%  | 37<br>34.9% | 44<br>41.5% | 12<br>11.3% |
| 5  | Google Classroom helps facilitate the management activities of school administrator                | 2<br>1.9%                   | 3<br>2.8%   | 39<br>36.8% | 51<br>48.1% | 11<br>10.4% |
| 6  | Google Classroom helps facilitate the learning process and management of teachers                  | 2<br>1.9%                   | 7<br>6.6%   | 36<br>34%   | 48<br>45.3% | 13<br>12.3% |
| 7  | Google Classroom makes it easy for me to upload notes for my students                              | 2<br>1.9%                   | 5<br>4.7%   | 21<br>19.8% | 58<br>54.7% | 20<br>18.9% |
| 8  | Students can easily gain access to my notes by using Google Classroom                              | 4<br>3.8%                   | 8<br>7.5%   | 38<br>35.8% | 39<br>36.8% | 17<br>16%   |
| 9  | Google Classroom serves as the main learning platform that can help improve students’ achievements | 5<br>4.7%                   | 10<br>9.4%  | 36<br>34%   | 43<br>40.6% | 12<br>11.3% |
| 10 | Google Classroom helps students to quickly attain their learning objectives                        | 3<br>2.8%                   | 10<br>9.4%  | 42<br>39.6% | 41<br>38.7% | 10<br>9.4%  |

(continued)

**Table 2** (continued)

| No | Items   | Frequency (f)<br>Percentage |    |    |    |    |      |       |       |       |       |
|----|---|-----------------------------|----|----|----|----|------|-------|-------|-------|-------|
|    |   | Scale                       | 1  | 2  | 3  | 4  | 5    |       |       |       |       |
| 11 | Google Classroom is highly relevant to be used in the teaching and facilitation process | 3                           | 7  | 30 | 50 | 16 | 2.8% | 6.6%  | 28.3% | 47.2% | 15.1% |
| 12 | Google Classroom helps improve the quality of learning among students                   | 6                           | 6  | 38 | 43 | 13 | 5.7% | 5.7%  | 35.8% | 40.6% | 12.3% |
| 13 | Google Classroom helps encourage students to actively engage in the learning process    | 8                           | 12 | 37 | 37 | 12 | 7.5% | 11.3% | 34.9% | 34.9% | 11.3% |
| 14 | My teaching sessions become more efficient with the use of Google Classroom             | 7                           | 13 | 41 | 35 | 10 | 6.6% | 12.3% | 38.7% | 35%   | 9.4%  |
| 15 | It is easy to carry out the teaching process using Google Classroom                     | 4                           | 10 | 43 | 35 | 14 | 3.8% | 9.4%  | 40.6% | 33%   | 13.2% |
| 16 | Google Classroom helps improve the quality of learning                                  | 4                           | 11 | 33 | 47 | 11 | 3.8% | 10.4% | 31.1% | 44.3% | 10.4% |

### 4.3 Teachers' Readiness to use Google Classroom

Table 3 summarizes the findings of the analysis of the teachers' levels of readiness to

**Table 3** Teachers' readiness to use Google Classroom

| No | Items  | Frequency (f) Percentage |    |    |    |    |      |       |       |       |       |
|----|--|--------------------------|----|----|----|----|------|-------|-------|-------|-------|
|    |  | Scale                    | 1  | 2  | 3  | 4  | 5    |       |       |       |       |
| 1  | I will use Google Classroom in future teaching and learning process  | 1                        | 16 | 27 | 44 | 18 | 0.9% | 15.1% | 25.5% | 41.5% | 17%   |
| 2  | I intend to use Google Classroom more often  | 1                        | 18 | 25 | 47 | 15 | 0.9% | 17%   | 23.6% | 44.3% | 14.2% |
| 3  | I will encourage my fellow teachers use Google Classroom   | 2                        | 14 | 24 | 51 | 15 | 1.9% | 13.2% | 22.6% | 38.1% | 14.2% |
| 4  | I intend to use Google Classroom in the teaching and learning process if internet connectivity is fully sufficient | 2                        | 6  | 15 | 49 | 34 | 1.9% | 5.7%  | 14.2% | 46.2% | 32.1% |
| 5  | I intend to use Google Classroom to create interesting learning environments                                       | 1                        | 9  | 22 | 53 | 21 | 0.9% | 8.5%  | 20.8% | 50%   | 19.8% |
| 6  | I have references to guide me to use Google Classroom in the teaching and learning process                         | 3                        | 13 | 33 | 39 | 18 | 2.8% | 12.3% | 31.1% | 36.8% | 17%   |
| 7  | My school has good internet connectivity to implement online learning using Google Classroom                       | 10                       | 31 | 28 | 26 | 11 | 9.4% | 29.2% | 26.4% | 24.5% | 10.4% |
| 8  | My school has experienced technical staff to in dealing with problems associated with the use of Google Classroom  | 4                        | 13 | 29 | 43 | 17 | 3.8% | 12.3% | 27.4% | 40.6% | 16%   |

use Google Classroom in the teaching and facilitation process. The levels of readiness were divided into parts, namely teachers' readiness (measured by six items) and the readiness of tools (measured by two items).

## 5 Discussions

Overall, the findings showed that the levels of teachers' acceptance of the use of Google Classroom in the teaching and facilitation process were high, which were attributed to several factors. The teachers cited that there were a number of features of Google Classroom that they found very useful. For example, they believed that this virtual learning application has a feature that provides specific storage space, which allowed them to manage files and documents more systematically and orderly. This, they claimed, was far better than the case of using the manual method. They also indicated that this application was equipped with a good user interface design, enabling them to navigate the virtual learning environment easily and intuitively. These revelations suggest that teachers' acceptance of the use of Google Classroom is heavily influenced by factors that teachers believe could make their teaching activities more efficient (Albashtawi and Al Bataineh 2020; Alim et al. 2019; Kumar et al. 2020).

The findings also showed that a majority of the teachers had positive perceptions of the implementation of the teaching and facilitation process. Such revelation stemmed from the fact that most teachers indicated that they found this novel online learning application had helped improve their teaching efficacy, enabling them to teach and facilitate student learning with ease. The teachers also argued that Google Classroom helped create an interesting, engaging online learning environment in which students became more active throughout the teaching and facilitation process outside the formal teaching hours. Such findings are consistent with that of Azhar and Iqbal (2018), Abazi-Bexheti et al. (2018) and Kumar et al. (2020), found most teachers believed that Google Classroom helped facilitate their interactions with students outside the school class hours. Additionally, the findings showed that most teachers had a high level of readiness to use Google Classroom in their teaching practices. This was made evident by some of the teachers' responses, indicating that they intended to use it more often, coerce their friends to do, and use available resources to improve the usage of such an application.

However, there were several issues that the teachers cautioned that could impede their use of Google Classroom. One major concern was that some schools, especially those located in rural or remote areas, did not have good internet connectivity to support online learning. This would have a major implication as connectivity is arguably the most fundamental requirement to create stable virtual learning environments, the failure of which would inevitably render efforts to implement Google Classroom futile. The teachers also highlighted their concerns regarding the needs for technical support to ensure online classes could run without any interruptions. Certainly, these concerns should be addressed at the ministerial level such that schools

lacking internet connectivity, infrastructures, and technical support be given immediate assistance without delay. By mitigating these issues, teachers and students in rural schools may have the chance to experience virtual learning similar to that of urban schools.

It must be emphasized that infrastructure, or the lack of it, would have a serious impact on teachers' intentions or readiness to use Google Classroom. Ideally, every school must be equipped with sufficient infrastructure, such as computer laboratories with internet connectivity, which teachers can rely on to create virtual learning environments. Another issue that should not be overlooked is the need for relevant training. Obviously, to reap the full benefits of Google Classroom, all users, especially teachers, must have sufficient knowledge and skills to harness this novel application. Therein lies the imperative for them to undergo training in the utilization of Google Classroom. Inevitably, e-learning or virtual learning will be a dominant feature in the future as learning becomes more flexible, student-centered, and dynamic (Dash 2019; Mkrttchian et al. 2019; William and Amanda 2018). As such, all the stakeholders, namely teachers, students, administrators, and policy makers, must be prepared to embrace this technology to deal with new teaching and learning challenges in the twenty-first century.

## 6 Conclusion

The findings of study help highlight several insights into teachers' perceptions of the usefulness, readiness, and acceptance of the use of Google Classroom in the teaching and facilitation process in Malaysia. A majority of teachers were found to have positive perceptions of the usefulness of this application. They also demonstrated high levels of acceptance and readiness to use such an application in their teaching practices. However, there were some teachers who showed some reservation in using Google Classroom. This finding could be partly explained by the fact that some schools in which they were in might not have sufficient infrastructure and technical assistance to support virtual learning. Also, they might lack sufficient knowledge or skills to help them use such an application. Collectively, these issues would negatively affect their readiness or intentions to use Google Classroom for virtual learning. As such, relevant agencies or parties must address these issues by providing such schools with sufficient infrastructure, reliable technical support, and specific training. Once these were addressed, making Google Classroom as a tool to create engaging, interactive online virtual learning environments would then be feasible. However, there are several factors that can be improved in future studies such as using a wider and more numerous respondents to obtain more accurate study findings and representative of the teacher population in Malaysia and conduct future studies to see the effectiveness of Google Classroom implementation on students.



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# Improving Financial Management Literacy Among Undergraduate Students in East Coast Malaysia



Noorul Azwin Md Nasir, Siti Afiqah Zainuddin, Siti Fariha Muhamad, Mohd Rushdan Yasoa', Tahirah Abdullah, Nadzirah Mohd Said, and Mohd Nor Hakim Yusoff

**Abstract** This study is conducted to analysed factors that influence financial management literacy among the undergraduate students. Among the factors examined are family background, financial management literacy, social influence and personal factor. Online questionnaires were distributed to undergraduates' students that are currently studying at universities located in east coast states in Malaysia. Using SPSS 24.0, descriptive analysis, bivariate analysis, and multivariate analysis were performed, and the data collected from 381 undergraduates. The results have demonstrated that financial knowledge has the highest and is positively significant relationship with financial management literacy among the undergraduate's students at east coast universities in Malaysia. This is followed with family background that shows significant positive relationship with financial management literacy. Looking at the results of correlation analysis, financial knowledge has higher impact on personal attitudes and vice versa, compared to all other independent variables. The findings of this study highlighted the importance of establishing financial knowledge to youth and it need to be demonstrated from home and continuously involving family, peers, and community. Furthermore, this study proved that knowledge is the beginning of a person to become literate of what he/she is doing.

**Keywords** Financial knowledge · Financial management literacy · Undergraduate

## 1 Introduction

In the aspect of our daily lives, money is considered valuable, especially to accommodate needs and wants in an increasingly complex modern world. Money may comfort the physiological needs. While pursuing tertiary education, undergraduate students require money to fulfil education needs as well as personal well-being. Undergraduate students need money to cover the cost of living in university life. Furthermore, day by day educational fees at public and private universities has increased (Ooi et al.

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N. A. Md Nasir (✉) · S. A. Zainuddin · S. F. Muhamad · M. R. Yasoa' · T. Abdullah · N. Mohd Said · M. N. H. Yusoff

Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Kota Bharu, Malaysia  
e-mail: [azwin@umk.edu.my](mailto:azwin@umk.edu.my)

2021). During university life, the costs are usually borne by the student dress and electronic gadgets, food and beverage, accommodation, books for reference and learning, tuition fees and travel expenses. Even during Covid-19 pandemic, the costs of living as undergraduates are still discerned. Having many items to plan and arrange, financial management literacy is important to ensure important student needs are met. The ability to make financial decisions will be limited if the individual is incompetent in managing its financial aspects. If a person is financial management literate, he/she can make informed financial decisions with confidence, manage personal prosperity with efficiency and increase financial competence to demand for better financial services by knowing financial literacy that had provide the necessary knowledge, skills and tools (Ali et al. 2015). An increased in financial management literacy and the ability to make decisions can change the planning and management of life events such as retirement, learning or better condition (Mahdzan and Tabiani 2013). Therefore, financial management literacy is obviously important because it affects the behaviour of individuals in managing their finances every day in addition to being highly effective guidance for developing the direction for improved financial. Exploring these aspects among undergraduates is an inquisitiveness matters that need to be examined.

Undergraduate students in local university in Malaysia are majority aged between 20 to 24 years old. During these ages, they survived monetarily mainly from study loans and family contributions. Among the contributors of funds for students are the *Perbadanan Tabung Pendidikan Tinggi Nasional* (PTPTN), *Majlis Amanah Rakyat* (MARA), *Jabatan Perkhidmatan Awam* (JPA), state funds, zakat, parents and others. Some undergraduates work part-time in order to have sufficient pocket money during their studies. In today digital era, many opportunities to generate part-time income through online activities. Tuition fees and costs of living are getting higher. This is consistent with the standard of living in Malaysia and there are a handful of parents that cannot help their children to pay the tuition fees at university. This leads to the fact where students try to find other sources to cover their fees. This include having a part-time job. Debt is also famously debatable among youths nowadays. Bank Negara Malaysia reveal a report in March 2021, that 47% of Malaysian youths have high credit card debts. Finance Minister of Malaysia, Tengku Datuk Seri Zafrul Abdul Aziz also make a statement not long after that 40% of millennials spend beyond their means. Given the circumstances, starting younger age, especially undergraduates must learn to manage their expenditures and income. Examining the factors that will enhance financial management literacy among undergraduate students will provide better view of equipping out youths towards better financial stability. The findings of this study highlighted the importance of establishing financial knowledge to the youth surroundings and it need to be demonstrated from home and continuously involving family, peers, and community.

The next section reviews the previous literatures of each variable related to this study. Based on the literatures, hypotheses are developed, and research framework is formed to display the underlying structure of the study. This is followed by the explanation of methodology used to meet the research objectives that is to examine the relationship between family background, financial management literacy, social

influence and personal factor towards financial management literacy level. The results and findings are discussed thoroughly and future research plan are also recommended.

## 2 Literature Reviews

### 2.1 *Financial Management Literacy*

According to Jamaludin, Ismail and Md Radzi (2019), financial management literacy is a basic concept in understanding money and its use in daily life. This includes the way income and expenditure that should be managed carefully. Besides that, the financial management literacy is defined as knowledge of facts, concepts, principles, and technological tools that are fundamental to being smart about money (Garman and Gappinder 2008). Another researcher defines that financial literacy as exercising in real life situations the ability to make informed judgments and to take effective decisions regarding the use and management of money (Balatti et al. 2009). Cull and Whitton (2011) describe financial literacy to encompass knowledge in individual financial terms and actions. Financial management literacy is an important for financial decision-making, and many young people wish they had more financial knowledge. Earlier study by Peng et al. (2007) found that students with higher financial literacy will make a good spending decision in their life.

Jamaludin et al. (2019) indicate that financial management literacy level among undergraduates are moderate. They recommend the importance of financial education to be embedded in the university syllabus programme. Antoni et al. (2020) recommended that personal financial management courses should be implemented in university for all course as any field of study will involve financial matters that need to be managed. Annabi et al. (2018) also reveals the need to implement school-wide personal finance classes for non-business students. They also suggested personal finance workshops especially targeting minorities, women, first-generation students, and students who have a student loan. Arofah Purwaningsih and Indriayu (2018) added, undergraduates with high financial literacy have good financial behaviour, and undergraduates with low materialism can hold and persuade themselves from making impulsive buying. A study by Rahmatia (2019) in who conducted study in Kalimantan region, provide evidence that gender, income per month and education background has no positive significant effect on the awareness level of financial management literacy but past experience will contribute to literacy level. Whereas in Australia, Bamforth et al. (2018) find that students' approach to manage spending, income, saving, peer relationships and stress changes as they make progress in their studies.

The financial literacy program should be assertive in making the people knows the important and the effect of financial management for themselves. According to Lusardi et al. (2010), financial management literacy gives important implication for financial behavior. In Malaysia, people behaviors towards financial management

are worrying. The chances of living in debt is partly due to the level of financial literacy of an individual. Many financial institutions are providing loans with reasoning of easing financial burden. Nevertheless, if the loans are not well managed, it may contribute to worsen future. Bank Negara Malaysia has conducted numerous financial knowledge enhancement programs for children and youth. One famous program launched is accounting book and accounting website, [www.DuitSaku.com](http://www.DuitSaku.com) launched in the year 2011. In a situation where a person is in financial burden, several agencies are willing to provide consultation in helping to manage the person financial condition. Today, there are many non-profit organizations raise their hand to help the people who are troubles in manage their finance like *Agensi Kaunseling dan Pengurusan Kredit* (AKPK), Securities Industry Development Corporation and *Perbadanan Insurans dan Deposit Malaysia* (PIDM). For instance, the AKPK has provide financial education, debt management, and financial counseling for free or charge to society. These programs were aiming to empower their financial knowledge and lead towards increasing financial management literacy. The agency also teaches about managing income wisely and spend within means. Given these facts, there are many ways to avoid the debt and gain financial management literacy, however it requires positive mindset. In examining the financial management literacy level, the attributes that contribute towards improvement of understanding should be accelerate. People of this country, especially the young generations must be given awareness and financial management skills in managing debt and income.

### **3 Attributes to Financial Management Literacy**

#### **3.1 Family Background**

As mentioned by Hira et al. (2013) that majority of the students turned out to be financially literate as the result of their parent's involvement in teaching them financial skills since early age. They added, parents' involvement needs to be consistent with the basis of social learning approach in views of influence on customer behavior. In era twenty-first century, home economics professionals view families as empowered participant influencing the world. Therefore, the need to have a well-positioned family is vital to better handle the increasing complex financial needs (Hira 2013). Consequently, parents must balance their career and family-life so that children can get significant financial exposure and education, both physically and mentally.

According to Esmael Alekam (2018) family member is also a factor that affect the positive development of financial-oriented matters of their family members. An old study by Bandura (1977) that is still relevant in today's perspectives, children learn by seeing his/her model. According to Ishikawa and Iushi (2019), the children should know more than their parents about the way to manage their money wisely. In other words, children always observe their parents' action, and they see parents as role model in managing financial hardship. Hence, this suggests that it is important for

parents to monitor their children financial knowledge and spending behaviour as well as also establish self-financial control environment. Arceo-Gomez and Villagómez (2017) examine the role of parents in developing their children's saving skill and competency in teenagers. For instance, to increase the financial awareness and the financial knowledge of a youngsters, the parent should teach on how to manage their money, mainly focusing on the pocket allowances that have been given. This maybe an example to teach the children's about saving ability that will increase their financial awareness and financial management literacy. Given the previous findings, the following hypothesis is generated:

- *H1: Family background has a significant positive relationship with financial management literacy.*

### **3.2 Financial Knowledge**

Huston (2010) contends that financial management literacy has two dimensions. Firstly, the understanding, where it represents the personal financial knowledge of financial education. Secondly, the use, which refers to the management of personal financial knowledge. In this context, the individual could have financial knowledge, but to be considered literate, they should have the ability and confidence to implement it when making decisions (Rai et al. 2019). Financial knowledge will give the big impact on the behaviour of financial management literacy among undergraduate students. Financial knowledge is a particular type of value acquired in life through learning the ability to manage income, expenditure and savings in a safe way (Delavande et al. 2008). It is impossible for someone to become literate without the knowledge (Fessler et al. 2020). The same goes with financial management because managing finance requires extensive knowledge in finance itself. Finance covers a wide range of aspects including investment, banking, business, travelling and many more. Financial knowledge is also essential to determine whether the individual financially literate, involving questions related to concepts such as simple and compound interest, risk and return, and inflation (Atkinson and Messy 2012). Study by Ibrahim et al. (2009) says that students lack with financial knowledge are facing higher risks experiencing financial difficulties in later years. By having scheduling targets of financial goals, it provide better quality of life and an improved lifestyle (Gholami and Tahoo 2021). The financial knowledge can be obtained whether formal or informal through parents, peers, schools, medias, and countless sources. With that, the following hypothesis is generated:

- *H2: Financial knowledge has a significant positive relationship with financial management literacy.*

### 3.3 *Social Influence*

In performing activities, there are phenomena that one is attracted to imitate their friend action or making the other as an example in their action. Guadagno and Cialdini (2010) define social influence as changes to the one's belief, behavior, and attitude due to external pressure. Some may have an attitude of quickly influenced to their surroundings and society around them, either via positive influence or negative influence. By saying positive, it means one's action that will drive them to the right path which is practicing good financial management. Thus, social influence is potent and has a powerful effect on behavior. Mpaata et al. (2020) has confirmed that social influence involves the exercise of social power by a person or group to change the attitude or behavior of other persons or groups in a particular direction. At the same time, the psychology research also defines that the social influence is change of individual's mind, thoughts or feeling as revealed by their interaction with other individual or groups of people (Scribner and Cole 2013).

In Malaysia, it was argued that the most obvious reason that spoiled the young adults in managing their financials was due to peer pressure (Jamal et al. 2015). Same goes to the arguments that were confirmed by Duflo and Saez (2002), where they found that individual with same preferences tend to belong into the same group, so that that creates a relationship between group and individual behavior. As the conclusion, they said that the peers or people around play the important role in savings and financial management literacy of students in university life. But then, research shows that most of students tend to spend their instant income such as PTPTN's loan or another financing loan towards their wants rather than save their money for their future (Pillai et al. 2010). Evidence also shows that university students spend their income on housing, education as well as other personal wants. Therefore, social influence helps the undergraduate students to understand the method of financial management and their financial will be more systematic and going on track of their budget. Based on the previous literatures, the following hypothesis is produced:

*H3: Social influence has a significant positive relationship with financial management literacy.*

### 3.4 *Personal Factor*

Financial management literacy may also relate to individual characteristics. Attitudes of student in managing money is also influenced by the level of knowledge of the individual (Ameliawati and Setiyani 2018). They added that students are more likely to save money rather than spend money if they had knowledge of financial management than those who have less knowledge about financial management. Garg and Singh (2018) shows that the attitude of students with higher academic achievement retrieved higher financial management literacy. For instance, in retirement planning, financial literacy is information that is important and necessary. It is because, with the

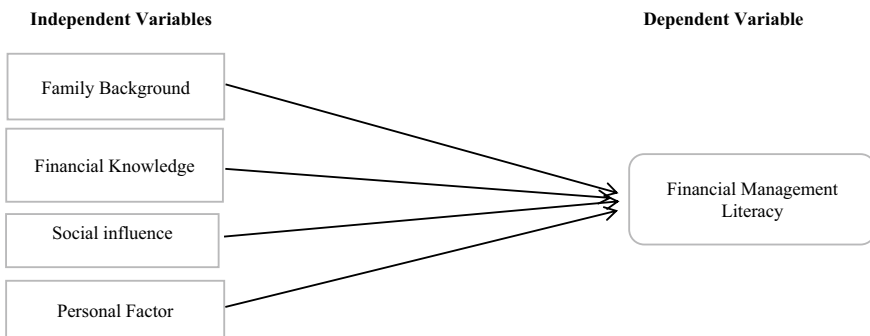
knowledge of financial literacy, they can save for retirement and wealth accumulation (Behrman et al. 2012). Results presented by Borden et al. (2008) suggest that the students that are responsible in their studies also are more likely to be responsible in managing their money. Individual who cares for saving are smart users in managing expenses properly according to personal means.

Additionally, undergraduate students agreed that possessing a sense of self control can help them to handle their finances in proper manners (Jorgensen et al. 2017). They also highlighted that self-control would delay their immediate gratification and thus avoid impulsive spending. Falahati et al. (2011) stressed that reckless attitude have positive effect on the financial problem. For example, the students that is not careful in spending, means they care less on financial management matters. These findings indicate that personal attitudes play an important role in developing mindset with financial management literacy. Given the previous literatures, the following hypothesis is:

*H4: Personal factor has a significant positive relationship with financial management literacy.*

Figure 1 demonstrate the research model performed for this study. Four (4) factors including family background, financial knowledge, social influence and personal factor are selected as independent variables. Financial management literacy is the dependent variable of the study. Therefore, the study will examine the effect of family background, financial knowledge, social influence and personal factor towards financial management literacy. This study also wants to confirm the following hypothesis:

*H5: Family background, financial knowledge, social influence and personal factor have a positive relationship with financial management literacy.*



**Fig. 1** Research framework



## 4 Methodology

The quantitative method analysis is used to achieve the objectives that are to evaluate the relationship between the independent variables which are family background, financial knowledge, environmental factor, and personal factor with the dependent variable which is financial management literacy. Online questionnaires were shared to collect the primary data source. This study aimed to determine the aspects that influence financial management literacy among undergraduate students studying in East Coast of Malaysia. A total number of 381 samples were collected and questionnaires were distributed online using Google Forms.

Questionnaires consists of 3 parts. Part A involving information of demography of the respondents, Part B is the independent variables and Part C is about dependent variables. Likert scales of 1 to 6 are used to measure the feedback from respondents for Part B and Part C. Scale number 1 reflecting strongly disagree and Scale number 6 as strongly agree. Part A consists of 10 items, Part B consists of 7 items for each independent variables and Part C consists of 10 items. All items are constructed to represent the mentioned variables. The 381-respondent feedbacks are analysed using Statistical Package for Science Social (SPSS) 25.0 in transforming the data into useful information.

## 5 Results

### 5.1 Descriptive Analysis

Part A of questionnaires is presented in Table 1. Nominal scales are used to identify possible attributes that may reflects financial management literacy among undergraduates in east coast universities in Malaysia. Questions include gender, state of university the respondent studying at, year of study, main financial resources, ever join financial management courses and age the respondent starts saving.

Referring to Table 1, the respondents were categorized into 2 genders which are male and female. Table 1 show that, the gender of the respondents in this research with the total 381 respondents. The targets of the respondent are undergraduates from universities located in east coast of Malaysia. It is show that the percentage of male respondents is 17.6%, while female is 82.4%. East coast of Malaysia is divided in 3 states, that are Kelantan, Terengganu, and Pahang. For each state, the percentage of respondents are 32.8%, 31.7% and 35.5% respectively. This study focuses on undergraduates that have enrolled for first year to fourth years. The highest respondent was from year 3 with 28.1%, followed by year 2 and year 4 with 27.3% each and lastly undergraduates from year 1 with 17.3%. Most of the undergraduates are using loans and family as their main financial resources in pursuing their studies. A percentage of 86.6% students has taken financial management courses at least once in their life. With regards to savings, 38.5% has started savings since primary

**Table 1** Profiles of the respondents

|                      | n   | %     |   | n   | %     |
|----------------------|-----|-------|---|-----|-------|
| <i>Gender</i>        |     |       | <i>Main financial resources</i>           |     |       |
| Male                 | 67  | 17.6  | Loans                                     | 285 | 74.9  |
| Female               | 314 | 82.4  | Family                                    | 52  | 13.7  |
| Total                | 381 | 100.0 | Scholarships                              | 19  | 5.0   |
|                      |     |       | Part Time Work                            | 20  | 5.1   |
| <i>States</i>        |     |       | Others                                    | 5   | 1.3   |
| Kelantan             | 125 | 32.8  | Total                                     | 381 | 100.0 |
| Terengganu           | 121 | 31.7  |   |     |       |
| Pahang               | 135 | 35.5  | <i>Taken financial management courses</i> |     |       |
| Total                | 381 | 100.0 | Yes                                       | 330 | 86.6  |
| <i>Year of study</i> |     |       | No  | 51  | 13.4  |
|                      |     |       | Total                                     | 381 | 100   |
| Year 1               | 66  | 17.3  |   |     |       |
| Year 2               | 104 | 27.3  | <i>Age started savings</i>                |     |       |
| Year 3               | 107 | 28.1  | 12 years old and below                    | 147 | 38.5  |
|                      |     |       | 13 to 18 years old                        | 132 | 34.6  |
| Year 4               | 104 | 27.3  | 19 years old and above                    | 67  | 17.6  |
| Total                | 381 | 100.0 | Never                                     | 35  | 9.3   |
|                      |     |       | Total                                     | 381 | 100.0 |

school, 34.6% started savings in secondary school and 17.6.% only started saving when they reached 19 years old and over. 9.3% undergraduates, however, is recorded never started any savings action.

## 5.2 Bivariate Analysis

Altogether, forty-eight (48) items were included in the questionnaires. The Cronbach's Alpha result for these questions was 0.775 which resulted as good. Thus, the coefficient obtained for the questions were valid. Therefore, the questionnaires had been accepted and valid. According to Pallant (2020), correlations strengths are measured between 0 value to 1, where 0 indicate no relationship and 1 as perfect relationship. The symbols of positive (+) and negative (-) reveals the direction of the relationship between the two variables. Table 2 represents the results of correlations analysis that reflects the answer for H1, H2, H3 and H4. The relationships of all variables also indicate a significant value of 0.000 which is lower than p-value

**Table 2** Pearson’s correlation analysis

|                               | Family background | Financial knowledge | Social influence | Personal factor | Financial management literacy |
|-------------------------------|-------------------|---------------------|------------------|-----------------|-------------------------------|
| Family Background             | 1                 |                     |                  |                 |                               |
| Financial Knowledge           | 0.395**           | 1                   |                  |                 |                               |
| Social Influence              | 0.335**           | 0.340**             | 1                |                 |                               |
| Personal Factor               | 0.397**           | 0.464**             | 0.378**          | 1               |                               |
| Financial Management Literacy | 0.482**           | 0.614**             | 0.315**          | 0.393**         | 1                             |

\*\* . Correlation is significant at the 0.01 level (2-tailed)

0.05. which suggested the results able to be generalized to other related population focused on this study. As the rule for interpreting the correlation coefficient mentioned, the correlation between financial management literacy and family background, environmental factor, personal factors and financial education have a positive relationship among them because it has a positive value of correlations. It is consistent with the theory mentioned by the past researchers that there is the positive correlation between financial management literacy and family background, environmental factor, personal factors and financial knowledge. The positive relationships prove that all four independent variables are significant to the financial management literacy of an undergraduate’s students in east coast Malaysia.

From the result presented in Table 2, the correlation between financial management literacy and financial knowledge (H2) shows the highest strength than others independent variable which has 0.614 correlation value. This indicates that the financial knowledge gives more effect to financial management literacy compared to other factors. This supported the hypothesis that is financial knowledge is positively related to financial statement literacy and it is a critical factor as mentioned by Huston (2010). The strength of relationships towards financial statement literacy then follows by the variable of family background (H1), personal factors (H4) and environmental factor (H3). Guadagno and Cialdini (2010) argues that social influence able to change one’s belief, behavior, and attitude due to external pressure. Therefore, it is possible that social influence was the least impacted variable because when student have a good knowledge on financial management, they an able to manage their money although the social influence (e.g.: sale or carnival) disturbs their financial stands. It is not shocked however financial knowledge and personal factors create highest strength of relationship between each other among all independent variables. This is consistent with Rai et al. (2019) findings that financial knowledge lead individual actions towards their spending behaviours.

### 5.3 Multivariate Analysis

R-square value, also known as Coefficient of Determination, tells you how much variation is explained by the research model. This study provides R-square value of 0.45 which means the variables consist in the research model explains 45% of variation within the data. The rule of thumb does advocate that the greater R-square the better the models are. With R-square value 0.45, it indicates a moderate level of variations for the model. Frost (2019) advocates that study that attempts to predict human performance will tend to have R-squared values less than 50%.

Table 3 demonstrate further provide information on multiple linear regression analysis performed on dependent variable of financial management literacy and independent variables family background, financial knowledge, social influences and personal factors (H5). According to the linear equation of this study, Family background and financial knowledge are positively significant towards financial management literacy among undergraduates studying in east coast with significant value is less than 0.01. Financial knowledge achieved the highest standardized coefficients at 0.377 compared to others independent variables followed by family background with the coefficient value of 0.244. This result is supported by Delavande et al. (2008) that highlighted financial knowledge is acquired through learning the ability to manage income, expenditure and savings systematically. The presence of parents and family as role models in terms of financial management may strengthened the financial literacy level of a person (Alekan 2018; Ishikawa and Iushi 2019; Arceo-Gomez and Villagómez 2017).

The other two independent variables, namely, environment and personal factor, do not have significant results significant value is more than 0.10. It is concluded that financial knowledge has the strongest predictor to financial management literacy

**Table 3** Multiple regression analysis

| Variables           | Unstandardized coefficient beta | Coefficient standard ERROR | Standardized coefficient beta | t-stat | Significant level |
|---------------------|---------------------------------|----------------------------|-------------------------------|--------|-------------------|
| Constant            | 1.822                           | 0.201                      |                               | 9.071  | 0.000**           |
| Family Background   | 0.244                           | 0.043                      | 0.260                         | 5.683  | 0.000**           |
| Financial Knowledge | 0.377                           | 0.038                      | 0.470                         | 9.974  | 0.000**           |
| Social Influence    | 0.037                           | 0.035                      | 0.047                         | 1.055  | 0.292             |
| Personal Factor     | 0.048                           | 0.043                      | 0.054                         | 1.130  | 0.259             |
| R2                  | 0.450                           |                            |                               |        |                   |

Note: \*\* Significant at the 0.01 level

among all the independent variables. The determinant of financial management literacy can also be summarized by the following equation:

$$\begin{aligned} \text{Financial Management Literacy} = & 1.822 + 0.244 \text{ Family Background} + 0.377 \\ & \text{Financial Knowledge} + 0.037 \text{ Social Influence} + 0.048 \text{ Personal Factor} + e \end{aligned}$$

From the equation, one can interpret that if one unit of financial knowledge increased, it will lead to an increase of 0.377 in financial management literacy. Whereas, if one unit of family background increased, it will lead to an increase of 0.244 in financial management literacy. While one unit of social influence increased, it will lead to a decrease of 0.037 in financial management literacy. Lastly, one unit of personal factor increased will lead to a 0.048 increase in financial management literacy. In conclusion, the multiple linear regression results show that there is significant impact on financial management literacy with family background and financial knowledge.

## 6 Discussion

Financial management literacy is important for undergraduate students to sustain an effective saving behaviour. From the study, it becomes clear that enhancing the financial knowledge will enable the undergraduate students to become literate in financial management and consequently able to manage their cash effectively. As most research has emphasized, financial education is the best way to enhance students' financial knowledge and skills. Therefore, it is important for policy makers to develop an effective education program based on the needs and financial literacy level of the students. The educational program should focus on improving the students' basic financial knowledge as well as spending and generating income skills. However, not all the programs in university have included financial courses especially non-business programs. Hence, organizing seminars or workshops can be an alternative manner for improving the students' financial knowledge, attitudes and behaviour. With Covid-19 pandemic, financial management literacy is still an important agenda in student's life. Online webinars can be an alternative to deliver knowledge and information. Consequently, students will be well equipped with essential skills to manage their income upon graduation and starting after university lifestyles. During working life, financial reward can motivate a person to improve lifestyle in a positive way (Ekhayemhe and Oguzie 2018). Therefore, establishing effective financial knowledge during university life could mitigate the bad financial habits and attitudes of the students at the same time also decrease the rate of default in repayment of study loans.

The policy makers and the ministries may also create events that promote financial socialization process to encourage young savers. With effective communication, observation and interaction with socialization agents such as parents and peers, financial management literacy can start sooner than later. Policy makers can actively

organize financial campaigns or webinars that involve parents to encourage communication of financial matters between them and their children in an effective manner. Besides, developers of educational program need to recognize that self-control in spending is an important skill for students to perform sound financial management. Hence, such programs should focus on how to help the students develop strategies to maintain self-control. Events should also highlight the habits of generating income from the expenses made. Youngster should also be encouraged to have the mentality of investment, meaning that the money spend should generate more money and later the financial income received should be managed with literacy. Parental performing good financial literacy also able to influence their children's financial knowledge and saving behaviour. Parents or guardian need to play the central role in facilitating and promoting their children to become financial management literate. Good examples will be able to influence the young minds to maintain a sound saving and spending behaviour. The findings of this study enlighten the parents on how they can encourage saving among their children and eventually impact on their future life and personal well-being.

## 7 Conclusion and Future Recommendations

To conclude, improving financial management literacy among undergraduates need effort not only from the individuals. Peers, communities, teachers and family a part of the environment that contribute financial knowledge and making an individual that are financial management literate. As undergraduates, they should take the learning opportunities as those around them provide financial information and experience from various angles in making them to have better financial management literacy than others. Based on today situation, many has expressed they are facing difficulties to manage their money and possible overspending that might be due to the lack of financial management exposures. By reading this article, it is hope that undergraduate students will enlighten the real function of financial management literacy and useful inputs that can be practiced in their life.

In this research, there are independent variables that do not achieved significant results. Although this study is reflecting the sample, having all variables that can be generalized to the population would be better and improved. We suggest future studies to expand the scope of the studies to other regions in Malaysia. One can also target certain groups of respondents such as non-financial undergraduates' programs or focusing on financial related undergraduates' programmes and examine the level of financial management literacy between these clusters of potential respondents.

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# The Use of Facebook and Technology in E-Learning Process



Abdulsadek Hassan

**Abstract** This study aimed to reveal the reality of using social networks for educational purposes. The results of the study revealed that the increasing use of social networks and their entry into various fields, including education, led to a change in educational philosophy; So, what is known as education through social networks officially appeared, and many faculty members in international and Arab universities and schools began using education through social networks as a method to create an interactive learning environment in which the student is an active element participating in educational responsibility, and the results revealed that Facebook is one of the alternative means for shy students to be able to express their ideas inside and outside the classroom and allows students to collect and express their ideas in writing before committing in their own words.

**Keywords** Social networking sites · Facebook · Educational process · Technology

## 1 Introduction

The generation that witnessed the emergence of the web depends entirely on technology in communication, social interaction, and education, and they consider the web an integral part of their education process, and despite its importance to them, there is a great scarcity to talk about this subject due to the scarcity of opinions and viewpoints about integrating digital media with classroom education, especially in the department that looks at social learning that has become a part of everyone's daily life, and students usually need to have sufficient awareness about their behaviors in using the Internet as a tool for interaction, collaboration, information sharing, and elements that help in this educational process; In order to successfully integrate technologies with learning strategies, the Facebook application is a great tool for learning and teaching, because it allows students to communicate continuously, smoothly and

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A. Hassan (✉)  
Ahlia University, Manama, Kingdom of Bahrain

quickly between them and teachers, due to their daily use of the Facebook application, as the use of Facebook for learning purposes has proven successful because it allows instant sharing of information and discussions (Dintoe 2018).

Facebook contributes to e-learning through its multiple applications that contribute to enriching the educational process, as the teacher can add exercises and display content with the so-called Flash Card application, and students can also, through the Book Tag application, exchange and lend books among themselves and the Courses application, which is important for the teacher in particular. Especially because it provides a set of important services for managing the study material, such as the ability to add courses, announcements and assignments, and the formation of discussion panels and study groups, in addition to many applications that can be employed in the educational process (Niu 2017).

The education sector is among these areas that have known a great deal of change and being affected by these developments, and distance education is not far from these effects, especially after the increasing use of social networking sites, as it is one of the most important ways and methods that represent an opportunity for universities to exploit because of the flexible virtual environment it provides (Liccardi et al. 2017). Through which the parties to the educational process communicate, with the provision of educational models based on strategies that allow them to obtain information and knowledge and exchange ideas, not to mention the preparation of a generation of teachers and learners who possess the skills to deal with technologies and help spread them in society and provide a rich educational environment and open the field of education democracy that It is based on distance education, including self-learning, taking into account individual differences, in order to achieve lifelong learning (Liccardi et al. 2017).

### ***1.1 The Importance of Using Facebook in Education***

There are many ideas that can use in various disciplines of teaching, including the following:

- **Follow-up on developments in the specialization:** where the teacher can assign his students to search for the latest studies and research in the field of the scientific subject he is studying, thus maintaining the students' connection with the new information in the specialization in Arab, or even foreign universities (Coman et al. 2021).
- **Collaborative research:** Students and teachers can review the research together by sending it to students in the same specialization for review, and then the teacher asks the students to write what they have benefited from the research on Facebook, such as forming groups of students who search together for certain topics (Rahmi et al. 2018).
- **Educational games:** can be used to improve students' reading and writing skills (Saini and Abraham 2019).

- **Opinion polls:** the teacher uses them as an effective educational tool and also to increase communication between the course students on Facebook and students of the same specialization to see their opinions about the course (Doğan and Gülbahar 2018).
- **Teaching other languages:** where students can communicate with other native speakers, for example English or French, through groups or networks (Greenhow and Askari 2017).
- **Follow up on new news:** by following groups for new news on international websites, such as weather news, natural disasters, and others (Rapp et al. 2016).
- **Instilling ambition in the hearts of students and increasing motivation:** by encouraging them to create and design new applications on Facebook that serve the educational material and publish it among learners to benefit from it, as many students present their practical applications to it (Keller et al. 2020).
- **Challenge participation:** where the teacher can involve students in activities that show their abilities and talents, for example, in preparing graduation projects or promoting their educational institution (Coman et al. 2021).
- **Use of multimedia:** The teacher can use video or multimedia and send it to his students to facilitate the learning process (Liccardi et al. 2017).
- **Diversity in the educational process:** through Facebook; By asking all students to add topics for dialogue, discuss them, share short information, photos, videos, links, or comment on them in a group or article page on Facebook (Lau 2017).
- **Helps make teaching and learning more enjoyable,** lively and live all day long through Facebook (Lau 2017).
- **Encouraging the use of technology,** the Internet and social networks (Dintoe 2018).

## *1.2 The Role of Facebook in Promoting Distance Education*

Facebook has changed the rules of communication in higher education institutions, and university students have become the most widely used demographic mass for social networking sites, especially Facebook, due to its many characteristics, both in terms of social communicative knowledge, or in the scientific field (Dela Fuente 2021).

There is no doubt that the characteristics prompted learners to use the social network “Facebook”, to contribute in one way or another to the learner’s field of knowledge, which is confirmed by recent statistics, as the number of Facebook users reached 1.3 billion users, and 680 million users on Facebook (Zachos et al. 2018). The mobile phone in 2014, which confirms the necessity of exploiting Facebook in the educational role as follows:

- The teacher or student creates a group or page for a course or educational topic and invites students to participate in it (Chowdhry 2017).
- Publishing pictures and educational videos appropriate to the subject, exchanging them among students, and discussing about it (Nasir et al. 2018).

- Collaborative review of books and research (Zachos et al. 2018).
- The opinion poll on Facebook, which the professor uses as an effective educational tool to increase communication between students.
- Learn foreign languages, so that Facebook allows dialogue with different people around the world (Niu 2017).
- Designing and presenting new applications that serve the educational material and benefiting from it (Raza et al. 2017).
- Creating a participatory education through Facebook by asking to publish topics for dialogue and discussion (Filipe and Mack 2019).

These characteristics and uses are only a description of the electronic environment and its exploitation as an educational environment, and despite the advantages it provides, traditional education cannot provide them (Duncan and Barczyk 2016). However, the parties to the educational process may face a number of obstacles, including:

The delay in the appearance of replies sometimes, as well as the network interruption at other times (Zachos et al. 2018).

Absolute freedom, which leads to the annoyance of messages to unknown persons.

Receiving viruses and malicious codes (Chaka and Govender 2017b), which lead to account closure or information theft...etc. (Duncan and Barczyk 2016).

### ***1.3 How do We Use Facebook as an Educational Tool?***

Here are some ways to take advantage of the advantages of Facebook and use it to make teaching and learning more effective, and even endearing them to students:

#### **1. Create a Facebook page**

It is the first thing that may come to mind when using Facebook, a page related to some academic content (for example, a historical figure), then students search for information related to it and add it (Peruta and Shields 2016).

#### **2. Cooperative learning**

Facebook is a very suitable opportunity and tool that teachers can invest in supporting collaborative learning, where students are divided into groups, each of which has its own page or group on Facebook, and the members of each group coordinate with them through the same network of communication to accomplish the task that they have been assigned, whether it is research or providing answers or otherwise. We note that this method is also suitable for project-based learning (Chaka and Govender 2017b).

#### **3. Take advantage of the places tool**

A tool that can be employed in order to locate certain countries or regions, and it is an opportunity to make learners deal with maps, such as locating nearby places and even neighboring countries. It is a tool that can be accessed from here (Salarzadeh Jenatabadi et al. 2017).

#### 4. **Communicate and be informed of the new**

As a leading social networking site, as well as a great arena for discussion and dialogue, and a meeting point for multiple cultures in different languages and customs, Facebook provides enormous potentials that we - as teachers, students, parents and administrators... - can benefit from and invest in improving teaching and learning, and these are some of the ways, to name a few (Popa et al. 2020). To ensure stronger and better communication, including better learning outcomes:

Create a private group or page related to a study material, educational topic, or students of a specific class or stage, and then invite students to participate in it with the aim of exchanging information and ideas, publishing and exchanging links to websites, pages, videos, photos and everything related to the topic or material (Salarzadeh Jenatabadi et al. 2017).

After each lesson, the teacher can use Facebook and add clarifications, notes or reviews that he did not have time for the class to address.

Students comment on a picture, post, or video related to a particular lesson, which is a feature that can be invested in identifying learners' representations regarding specific educational content that the teacher may be preparing and preparing for (Popa et al. 2020).

Facebook as a means of discussion and exchange of ideas, whether before or after the class (Rezeanu et al. 2015).

Facebook as a means of continuing the relationship between graduates of a particular cohort to maintain communication and continue self-development and learning (Çakiroğlu et al. 2020).

#### 5. **Ads**

Facebook can be used very easily as a tool and a means to spread ads, for example:

- Inviting students and others to attend various educational events: lectures, meetings, trainings ... (Filipe and Mack 2019).
- Postponement of the test (Liccardi et al. 2017).
- Asking for an assignment or assigning a task, such as summarizing important points from the lesson (Todorovic et al. 2020).

#### 6. **Take advantage of the Events tool**

It is a feature provided by Facebook, which the teacher can use to alert, for example, the date of a test, the date of bringing a certain assignment, or the time to complete a task (Nasir et al. 2018).

#### 7. **Learn foreign languages**

Through Facebook, students can join groups or like pages related to language learning, to have the opportunity to communicate with native speakers of the language they want to learn, not to mention benefit from the educational content provided by these groups and pages. In addition to the possibility of benefiting from the Facebook applications prepared for this purpose, such as the application (Giannikas 2020).

#### 8. **Supporting modern strategies in teaching**

In addition to many other communication networks, Facebook is an opportunity to diversify teaching methods and a learning platform through which many modern strategies can be used in teaching, such as problem solving, project-based learning, brainstorming, discovery learning, and others. It is a way to deal with various types of media, files, tools and environments. necessary for modern teaching methods (Liccardi et al. 2017).

9. **A tool for brainstorming**

Where the teacher asks the students to present their ideas and information about a particular topic or project, in order to invest it later in the lesson (Gettman and Cortijo 2015).

10. **Follow up on developments and news**

On Facebook, teachers can follow their majors and stay in touch with fellow professionals from all over the world (Chowdhry 2017).

11. **Facebook educational applications**

The site provides a large number of educational games and applications that it is recommended to employ in order to entice students to study and access to more enjoyable learning (Lau 2017).

12. **Feedback**

Feedback is of great importance to learners. It is required to install the correct information, or correct it if it is wrong, and Facebook is a very suitable tool for this, whether through comments, shares or likes, as it maintains communication (synchronous and asynchronous), which is something that positively affects the hearts of students (Chaka and Govender 2017b).

13. **Communicating with parents**

It is not hidden from anyone about the importance of communication between educators and parents, and we have previously on the blog and more than once have touched on the importance of that, and we have highlighted the most important means and tools to help link this communication, of which Facebook is one of them, as it can be used in:

- Share videos, photos, activities, details of trips and excursions...
- Request for opinion.
- Sending invitations to attend (Liccardi et al. 2017).

14. **Facebook for sharing, sharing and exchanging information**

Facebook has huge technical and technological capabilities that the teacher should not be negligent in investing it through:

- Publishing educational images and videos appropriate to the material and sharing them with students and those interested, to comment on and discuss its content (Chaka and Govender 2017a).
- Exchanging experiences and information with those interested from all over the world in an educational topic (Moussa 2018).
- Publishing and sharing e-books (a new education page on Facebook as a model) (Skendžić and Devčić 2017).

- Publish and share useful websites and media to enhance students' information and broaden their horizons (Çakiroğlu et al. 2020).
15. **Motivating students and developing motivation towards learning**
- Facebook with its positives, capabilities and powerful tools will inevitably contribute to raising the level of motivation among students, which is necessary for every effective learning to make more effort, interaction and communication, which will have positive results on learning (Dintoe 2018).
16. **Employing the timeline for Facebook**
- It is very suitable for teaching history, and here are some good examples of integrating this idea into education:
- History of the Soviet Union.
  - Magellan's Journey.
  - Inventions of the twentieth century (Saini and Abraham 2019).
17. **Voting and opinion polls**
- Students may have different opinions about a particular topic, which requires a decision. In this case, in keeping with the spirit of democracy that should prevail in our classrooms and to increase communication, the teacher can make use of the voting feature provided by Facebook (Coman et al. 2021).
- To conclude, the above methods and ideas are not the only ones to use Facebook as an educational tool, as the ideas are difficult to limit, as the field of creativity always remains open, especially in light of this technology that surrounds us from all sides (Salarzadeh Jenatabadi et al. 2017).

#### ***1.4 How to Use Facebook in Education***

Sharing educational content directly, as the Facebook application will facilitate the sharing of materials, items, and research related to lectures and class sessions. Information provided in class, as well as books and summaries that will benefit your students (Keller et al. 2020).

Create groups on the Facebook application for classes, and for sub-groups that bring together your students (Greenhow and Askari 2017). These groups will facilitate the sharing of information and reports, and will provide smooth and fast communication, while ensuring the privacy of all the information you share with students in these study groups (Chowdhry 2017).

Follow up on students' lectures through the live broadcast feature on the Facebook application (Giannikas 2020). This tool will allow you to record videos, which will enable your students to attend your lectures at the broadcast time you chose or at any later time as well, and this will be useful especially in cases of difficult lessons that are difficult for Students understood it from the first time (Nasir et al. 2018). Having videos available even after the live broadcast allows students to repeat them again for better understanding (Liccardi et al. 2017).

Dividing the electronic educational content in the form of short and simplified publications on the Facebook application, such brief publications will get more shares and likes in the comments than interaction on the long educational content (Duncan and Barczyk 2016). This content will help in encouraging effective participation between the teacher and students through a series of information and short lectures that It will make it easier for them to focus and retain the information, make sure that the publication is useful and attractive that does not get tired of its length or does not take advantage of the limited information and words (Rapp et al. 2016).

Take advantage of the notification services provided by the Facebook application, such as helping and reminding you through notifications of the specific dates of exams, for example, the times when students submit research and reports, and seeing their assessments and results in a timely manner (Skendžić and Devčić 2017).

The focus in the publications of Facebook in the educational journey is on visuals, such as images and videos, as they are more attractive than written texts, as the visual content is more attractive and will increase focus, be creative and accurate in balancing and synchronizing images and supporting them effectively and purposefully to reach the goals of e-learning (Greenhow and Askari 2017).

The ability to communicate with people abroad easily and quickly, which is a great way to exchange experiences and information between teachers and students from all over the world (Skendžić and Devčić 2017).

### ***1.5 The Role of Social Facebook in the Flow of the Work of the Educational Administration***

Facebook is interactive contributions to the development of education, transforming the school from an educational environment confined to its walls to going outside its walls, in order for education to transcend the limits of time and place, in addition to involving all parties of the educational process with the community with its parents and its multiple institutions, and to give the education process a social aspect (Liccardi et al. 2017).

Facebook increases the possibility of communication opportunities, raise the level of communication skills and dialogue among students, and they work to raise the levels of social development for students, through the student's participation of all social groups in his virtual community within social networking sites, and eliminating the problems of shyness and introversion. Through the real opportunity for virtual communication, and the development of the student's social skills (Doğan and Gülbahar 2018).

Facebook has become one of the important educational and social electronic institutions that play an important educational role in raising students and providing them with sound scientific knowledge, customs, and traditions if they are well managed (Giannikas 2020).



It also contributes to the development of several aspects of the student's personality, whether academic, social or psychological. The educational process is not just an indoctrination, or a book that teaches, but rather an interactive and participatory science that aims to build the integrated personality of this student (Rahmi et al. 2018).

### ***1.6 Disadvantages of Using Facebook in Education***

There is no doubt that there is nothing perfect in life. Everything has its negatives as well as its positives. However, the matter approaches idealism if its positives outweigh its negatives. Among the negatives of using the Facebook application in education are the following:

Distraction and distraction of students, this wide application, which allows the user the freedom to perform more than one operation through it at the same time, may cut students' focus and distract them from the educational process in the virtual classroom based on this platform. Online bullying, the application may be used as a weapon for bad behavior, and up to students bullying other colleagues, or sometimes even teachers, as social media facilitates cases of bullying, so teachers should monitor students, and prevent this from happening as much as possible (Chaka and Govender 2017b).

The quality of posts published by students, as the application allows publishing and receiving some inappropriate and inappropriate content for viewing by students, and it will be very difficult to monitor how students use social media and deter them from publishing harmful content, which will distract their attention and harm the educational process they receive (Dela Fuente 2021).

Lack of direct communication between teachers and students, as we mentioned earlier, Facebook provides a feature to hold live broadcasting episodes, which may create a feeling of safety for learners to express themselves and their opinions and share their inquiries with their colleagues and professors, but students will miss real lessons that gain them valuable skills through direct communication, which will benefit them in their future lives, whether in terms of personal relationships or social life, so it is necessary to monitor and emphasize students by teachers at the points of participation to be effective with their other colleagues (Dela Fuente 2021).

### ***1.7 Experiences of Using Facebook in Teaching***

1. In Canada and in Saskatoon, Angela Primary School is located, where sixth-grade students use Facebook to communicate with other students in Brazil, England and South Africa in the geography course, where they cooperate in solving assignments, asking questions and discussing between them, and

preparing video reports, where it is placed on the page dedicated to the course (Coman et al. 2021).

2. Teacher Sar Remyne is a history teacher in America. She teaches her students the history course. She works with her students in a traditional way by assigning students projects, then they collect information and prepare a PowerPoint presentation about the project, then each student performs his presentation in front of his colleagues. The teacher thought of how to use Facebook to display the sequence of historical events, she asked each student to create a page on Facebook and choose a specific character, then the students search for information about this character, and put it on his personal page, including his personal and family photos, some students even put pictures of his birthplace This character, and the house in which he grew up. They find even minute details of their lives and then put that information into the personal pages of these celebrities (Çakiroğlu et al. 2020). One of the students chose the character of Samuel Morris, the inventor of the telegraph in the early nineteenth century, and the student updated his status with the same Morris tokens on Facebook. After completing the projects, each student enters the page created by his colleagues and provides a comment on the information contained therein, until there is a large amount of discussions that took place in the classroom (Raza et al. 2017).
3. At Amsterdam High School, Facebook was used to teach a history course; Four topics are discussed: the rise and fall of the Soviet Union, fashion from 1950 to the present, inventions of the twentieth century, and Magellan's voyage (Chaka and Govender 2017b). Where students benefited from the Timeline tool. Where the students created four pages, each page concerned with a specific topic from the four topics, where the students start with the beginning of the event, they collect the most important events that occurred on that date through the Timeline tool and then move to the other date and write the most important events that occurred on that date as well, until it ends These events, accompanied by accompanying discussions, and adding images, videos or audio related to each of the events (Duncan and Barczyk 2016).
4. The experience of the United Arab Emirates: Having proven its feasibility in effective education, the Abu Dhabi Education Council has begun to expand the use of social networks in the educational process. These networks have become an integral part of learning Students and strengthening their connection with the local and regional environment and the world as a whole, and made them aware of all the technical, scientific and cultural developments that the world is witnessing, so there is a strong trend to equip all schools with advanced technical and educational means (Todorovic et al. 2020).

These media can achieve their educational goals, as it enables social networking activities to focus on research, data collection and communication with experts, and that blogs can be used to stimulate discussions and constructive dialogues, and mutual cooperation in electronic knowledge sites, and in general all these social media provide easy access to support And the exchange of experiences, professional

development, and the best practices followed within the professional and scientific community (Nasir et al. 2018).

## 2 Conclusion

Having overlooked theoretical sources, the rise of social media use appears to underline the central importance of learners and their attitudes toward learning. Students' positive attitudes lead to independent actions to discover new ideas, and to study without any stress. Facebook seems to be one of the most attractive tools nowadays to build our own approach in order to improve future results.

Using Facebook can engage students in meaningful language-based activities. We can use Facebook as a complementary virtual educational tool as a great opportunity for students to facilitate the learning process. However, Facebook cannot completely replace real class attendance and teachers' lectures. We shouldn't make our teachers stop lecturing and just start letting students learn for themselves. Perhaps using Facebook and with the help of their teachers the students will explore and become managers of their learning of the different approaches.

We can say when learners use Facebook, it motivates them. The more motivated teachers are, the more independent they become, which affects their ability to learn the language better. The relationship between autonomy and motivation is well established on a theoretical level. Moreover, students are more committed to it when they can decide what to do because they decided to do so. Also, if learners understand why they are doing something, they will become more motivated, and more willing to do what is necessary to achieve their goals.

We can conclude that learners should be given a lot of freedom to develop their own style and take responsibility for their own learning. Learners should not rely exclusively on the teacher for their learning outcomes. In fact, Facebook is a very important tool for a teacher to help students be more independent and develop their own strategies.

## 3 Recommendations

There is no doubt that the Facebook site has been established to serve the users of those networks and provide them with means of convenience in various aspects of life, including education, as technology has become an integral part of our daily life, and the study recommends.

1. Encouraging students, teachers and everyone who has an active role in the educational process to conduct more studies and research on social networks in education, due to the lack of studies in this field and its importance.

2. The importance of the concerted efforts of educational, educational, civil and governmental institutions and the development of mechanisms to determine the needs of children in order to reach the optimal use by them of social networks.
3. Encouraging students and teachers to employ technology in education through social networks because it has a prominent impact on the effectiveness of the educational process and to keep pace with development in technology and there is no separation between technology, education and development.
4. Awareness and education of young people that behavior on the Internet must be responsible, as if it were in the real world.
5. Not to be preoccupied with participating in social networking sites while driving a car or performing dangerous work.

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# E-Learning and Understanding of Accounting During Covid-19 Pandemic: Literature Review



Amal Abdullah Isa, Fatima Jamal AlYaqoot, Tahera Sayed Ahmed, Yara Tareq AlArabi, Allam Hamdan, and Bahaaeddin Alareeni

**Abstract** E-Learning has been introduced in the economy after the revolution of technologies that increased in many sectors and that has become a necessity in the current period of life specially during the COVID-19 pandemic. E-learning is illustrated in using the electronic communication to deliver education between educators and learners which helped institutions and universities to implement innovative features and techniques in order to enhance interactions between students and educators and make it more flexible in time and place for both. In this research paper, we have examined and investigated the implementation of E-learning during the COVID-19 pandemic and how that has affected the E-learning process, explaining the significance of E-learning and specially in understanding accounting. Furthermore, this research study obtained to one more objective that is identifying some of the major challenges while understanding accounting through E-learning particularly during COVID-19 crisis. This study's design was to adopt the examination of the implementation of E-learning during COVID-19 on the dependent variable which is understanding and studying accounting. The findings of this research study that the E-learning during COVID-19 has been increased and more consumed by many sectors, resulting from the need of minimizing direct contacts between educators and learners. Besides that, there was found that there might be some various challenges facing E-learning during COVID-19 and specifically in understanding accounting.

**Keywords** E-Learning · Accounting · COVID-19 pandemic

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A. A. Isa · F. J. AlYaqoot · T. S. Ahmed · Y. T. AlArabi  
MBA, College of Business and Finance, Manama, Bahrain

A. Hamdan (✉)  
Ahlia University, Manama, Bahrain

B. Alareeni  
Majan University College, Muscat, Oman

## 1 Introduction

The spread of the recent growth and development of technologies has been increased in a wide range in the whole economy (Maffey et al. 2015). Many sectors of the economy are now depending almost entirely on information technology and its development and innovation (Caliskan 2015). In education sector and specially during the COVID-19 pandemic, those technologies and the internet have played a great role. Reflecting its innovation in the E-learning, which is about the use of electronic media and information in addition to the enhanced technologies that are present in the communication of education to be applied in accessing the educational classrooms online anywhere but not in the traditional classrooms (Najim and AlNoori 2020). The concept of E-learning is growing to be more popular that made it attractive for many big organizations to invest in (Goyal 2012). Moreover, as E-learning is used by corporates, schools and institutions, it is highly needed to be kept up with advanced and recent information and communication technologies for the reason that it provides educators and students time and place flexibility which will enhance the learning process's efficiency (Arkorful and Abaidoo 2014).

There is an agreement that one of the most significant domains that got impacted by the COVID-19 crisis is education. Universities were forced to shut their doors down to minimize the levels of learners' physical attendance so as to apply the precautionary measures. These measures that were actually meant to increase social distancing. The only and most solution for the purpose of continuing the educational process and to allow students to go on acquiring knowledge was to apply e-learning or distance learning. E-learning represents an opportunity for learners to be educated safely and remotely through the internet applications (Crețan and Light 2020). Accounting students in the accounting and business high education institutes were no different from other university students. They were required to have access to their lectures online and to set for their exams on university websites. E-learning is one of the tools that accounting universities were required to make use even before the COVID-19 pandemic. This is actually attributed to the fact that accounting students have many applications that can be used for doing their accounting on the internet. This is one of the outcomes of the rise of the internet accounting concepts and implications in the past few years (Favale et al. 2020).

The preference and implementation of E-learning have increased over the years. During the COVID-19 pandemics, man governments suspended physical learning in institutions forcing schools to shift to online learning. The move contributed many benefits to students, institutions, and lecturers (Sigroha 2020). E-learning is a new phase for introverts who enjoy studying privately. It enables students to learn with a comforting and self-structured pace and timetables, enabling them to undertake other activities (Al-Fraihat et al. 2020). It also provides enhanced studying through graphical and video explanations, which is enjoyable and promotes understanding to students at a cheaper cost. Technical aspects such as accounting may be difficult to deliver through online platforms because of their complex nature.

In this study, the researchers explore the available literature about the implementation of e-learning and its contribution to enhancing the accounting students understanding of the account curricula during the COVID-19 pandemic. This includes sub-sections that investigates the definition of e-learning; features of e-learning; theories that explain using e-learning in understanding of accounting; significance of e-learning; e-learning in understanding accounting during COVID-19 pandemic; and challenges of e-learning in understanding accounting during COVID-19 pandemic.

### ***1.1 Research Problem***

Our study problem is to recognize the main consequences that are resulted from the effect of COVID-19 pandemic on accounting E-learning and understanding accounting. Specifically, nowadays with the existence of such pandemic, numerous numbers of new technologies have been implemented. How this pandemic has affected the process of E-learning in accounting?

### ***1.2 Research Objectives***

- To examine the level of COVID-19 impact on E-learning and Understanding of Accounting.
- To investigate the various challenges of Accounting E-learning during COVID-19.

### ***1.3 Research Questions***

- What is the impact of COVID-19 on Accounting E-learning?
- What are the challenges of E-learning in Accounting during COVID-19?

### ***1.4 The Purpose of the Study***

In this research paper we will be focusing on the E-learning and understanding of Accounting during COVID-19 pandemic. Our findings will identify the principal impact of COVID-19 pandemic on E-learning and understanding of Accounting and will eventually identify the various challenges that are facing Accounting E-learning during the COVID-19 pandemic.



## 2 Literature Review

### 2.1 *Definition of E-Learning*

E-learning is one of the concepts that has been confronted with many constraints to reach an agreement on one comprehensive definition; however, no agreement was reached. This is in fact understood in light of the nature of the concept of learning itself which is a complicated one. Complexity related to the definition of learning stems from the nature of the learning process which witnesses ongoing changes, and which is impacted by the overall atmosphere in each community. Learning is basically related to the human nature of the learners which is also a non-stable issue. So, one definition for the concept of learning refers to it as “the process of acquiring new understanding, knowledge, behaviors, skills, values, attitudes, and preferences” (Karban 2015). Since learning takes place through acquiring skills, knowledge, understanding, etc., this can happen via different tools. The rise of the internet provided opportunities for learners to do this virtually from the comfort of their homes or from remote distances from their learners. This paved the route for the introduction of e-learning (Chan and Ngai 2012).

One of the multiple definitions that were introduced for the concept of learning refers to it as “Using information and computer technologies and systems in order to build and design learning experiences” (Almarzooq et al. 2020). Another definition refers to e-learning as “Transferring knowledge and education by utilizing various electronic devices” (Koochang and Harman 2005). A third definition describes the process of e-learning as “The integration of technology in the pedagogical process to meet the needs of the learners through the internet platforms” (Gel et al. 2014).

### 2.2 *Feature of E-Learning*

Based on the multiple definitions for the concept and practices of e-learning, it can be assumed that e-learning is distinguished from traditional learning. This is obvious through the numerous features that e-learning enjoys. For one thing, e-learning is featured by availability. This is recognized in light of the fact that e-learning offers numerous opportunities for knowledge and information sharing since the education institutes upload the materials to be learned in different forms (documents; videos, PPT presentations; photos; graphs; etc.) on their websites where learners can access these materials while lecturers give live lectures or later on from any place and at any time. This is a major source for facilitating the learning processes (Kapasias, et al. 2020). Another feature is variety. Variety in this context means that through the web-based platforms that universities possess, accounting academicians for example are able to develop many types of strategies for learning the accounting students. They are also likely to make use of different forms accounting materials. Learning games grow more likely to be applied in the accounting virtual classes where accounting learning

can learn individually or in virtual groups. Assimilation is one of the various types of e-learning that can be employed. Mobile learning is also applicable (Donnelly et al. 2021). A third feature is interaction. E-learning creates more opportunities for learners to be more interactive than traditional learning. Learners in this type have to show their own abilities to present some topics. They are required to adopt more research-based learning. They have always to be part of the learning discussions on while they are being taught. This is to say that e-learning represents a real shift towards student-centered education (Zaman 2021). A fourth feature that distinguishes e-learning from traditional learning is the integration of information technologies. This is actually the most prominent feature. The majority of the e-learning practices take place through the internet applications. The cloud teaching is thus a major component of the learning process. For example, accounting academicians upload the learning material on the cloud. Tests are carried out through the cloud. Thus, laptops, mobiles, PCs, internet, etc. are all integrated in the learning process (Wattjatrakul 2020a, b). A fifth feature is responsiveness. Through e-learning students do always expect to collect instant feedback from their academicians. This is instant feedback can be automatic through some online forms that include instant answers for their questions, or through the auto correction techniques that help students know their degrees once they are done from their tests (Yu 2021).

### ***2.3 Theories Explaining E-learning***

#### **Technology Acceptance Model (TAM) and Understanding Accounting**

When it comes to show the extent to which students are ready to accept the implementation of technology in the education domain, no other model is better than TAM to be used. This is because the Technology Acceptance Model is one of the earliest models that involves and explains the peoples' cognitive factors which are expected impact their acceptance of any specific type of technology when doing different types of tasks especially while acquiring knowledge and / or resolving problems. Furthermore, this model has been known to reflect the relationship between information technology and humans through two aspects: Perceived Usefulness and Perceived Ease of Use (Almarzooq et al. 2020). Perceived usefulness show the users recognition of the amount of the benefits that can be reaped from the usage of the technology in the educational domain for example as this is the case being focused on. It also reflects the degree of confidence of the technology user concerning the extent which information technology can enhance and improve their educational outcomes. Concerning ease of use, the model shows that students' acceptance of the accounting material being offered and explained through e-learning is determined in accordance to their recognition of how easily these materials are accessed and used (Walker et al. 2020).

### **Emotional Intelligence Theory and Understanding Accounting**

There are assumptions ensuring that emotional intelligence constitutes a significant model that explains the relationship between e-learning and accounting understanding especially under the current circumstance of the covid-19 pandemic. Through emotional intelligence students learn how to possess more control on themselves and learn how to increase the level of mood regulation when they experience times of crises as in Covid-19. This theory provides the accounting students with recommendations that help them overcome the feelings of failure, as well as how they can control their emotions and regulate the state of self (Nguyen et al. 2020). The outcomes of prior research as (Rinaldi et al. 2020) indicate that there are various components that make up emotional intelligence. These components involve: self-recognition; self-control; motivation; empathy; and social skills. All these components have been recognized to have a positive and significant impact on the level of accounting understanding (Reyad et al., 2019; Razzaque and Hamdan 2019).

### ***2.4 E-Learning Encourages Contribution by Introverts***

E-learning promotes equality in discussions allowing introverts engagement, unlike in traditional discussions. Introverts find it easier to present their ideas through non-social platforms such as typing without appearing before a physical audience. According to Lambregts (2020), introverts enjoy online discussions than extroverts because it helps them overcome their weakness by just typing their ideas. Their contribution enables their ideas to be considered with the same weight, unlike where they would be too shy or unwilling to defend their points in public. Additionally, e-learning has enabled discussions to continue despite the new protocols on social distancing and isolation. Students who understand better through group work than individual learning have benefited from this move (Ilgaz and Gulbahar 2017). Therefore, e-learning is significant in ensuring the inclusivity of all students in academic discussions and has enabled learning to continue with the impacts and rules of the Covid 19 pandemic.

### ***2.5 E-Learning Facilities of Self-paced and Flexible Learning***

E-learning facilitates self-paced and flexible learning and completion of studies that enable students to create time for other activities. It enables students to learn without physically availing themselves of the lecture, enabling them to learn at the comfort of their homes at their own time. The flexibility enables them to concentrate on their jobs, social life, and family roles. Ilgaz and Gulbahar (2017) discovered that learners preferred e-learning because it overcame location limits. They enjoyed the flexibility

of learning while away from school because of personal commitments. Research by Ilgaz and Gulbahar (2017) indicated that most graduate degree learners preferred eLearning because it enabled them to retain their jobs and undertake studies part-time. 90% of the graduate students in the research had full-time jobs, while others were married and raising their children. Therefore, e-learning benefits learning by enabling them to retain their jobs and spent time on other vital activities.

## ***2.6 E-Learning Improves Time Efficiency***

The nature of e-learning promotes time efficiency among learners and lecturers. The students have to log in to their portal to study at any place. It saves traveling time that would have been incurred in physical classes by the lecturers and the students. Studying through eBooks and videos is also more convenient and saves the time used in perusing book pages to find the desired topics. Ilgaz and Gulbahar (2017) discovered that physically challenged persons preferred e-learning to overcome the traveling and physical barriers that would delay their arrival in classes. E-learning platforms also save time by quick coverage of topics and better understanding, reducing the need for repetitive studying. Research by Elfaki et al. (2019) concluded that e-learning students performed better than traditional learners because they could cover more within smaller periods with at most concentration. They achieved this through self-timed sessions and breaks favorable for each person's concentration ability. Also, the students can use recorded lectures to preview aspects of their study area at times suitable for studying. Therefore, e-learning promotes time management for lecturers and students through quicker access to materials and recovery of traveling time that would have been spent to get to class.

## ***2.7 E-Learning is Cost Effective***

E-learning is cost-effective to institutions and learners. The physical absence of students in the school reduces the overall running cost of the institution. It enables one teacher to supervise the progress of several classes simultaneously, which is impossible through physical learning, which reduces labor costs (Ikeda and Ueda 2017). The cost cuts at institution levels translate to lowers school fee requirements which increases the affordability of education. Additionally, videos to illustrate machinery operation eliminate the cost of acquiring and maintaining such machinery. It eliminates the cost of traveling to school, buying books, and other personal expenses of physical learning for students. In the research, the use of tablets to access eBooks and online presentations of assignments was much economical compared to the use of physical materials (Al-Fraihat et al. 2020). The lower cost encourages undergraduate students to pursue graduate studies. Conclusively, e-learning provides cost

cuts to students and institutions, which increases affordability and access to higher education.

## ***2.8 E-Learning and Mass Enrollment***

E-learning enables a larger enrollment of students while maintaining standard quality of learning. The overall enrollment levels have increased in the past year due to increased distance learners through e-learning (Ilgaz and Gulbahar 2017). The number of students in traditional learning methods is limited by the classroom size and the lecturer's capacity to control within one class. Lecturers are forced to divide students into groups and give different lecturers for each group. Teaching large groups may influence the quality of education delivered to backbenchers, slow learners, and other disadvantaged groups. In e-learning, each student can capture every aspect of the topic at the desired pace and time. The number of online learners is unlimited and equal opportunities, and quality of education is delivered. It is also easier for the lecturer to monitor the students through the software than through physical checking of assignments and attendance rates. The low cost of e-learning also opens doors for more students to afford and enroll in higher education. Hence, e-learning improves access to education to more people and enables consistency in the quality of delivery.

## ***2.9 Results to Higher Concentration and Learning Experience***

Lastly, the use of video graphics and pictures in e-learning enhances students' concentration and learning capacity. Modern students demand customized multimedia content as part of their learning materials, especially in technical courses such as accounting and engineering. They include recorded audio, animated lessons, experiments, and illustrations. According to Liu and Elms (2019), video and animated cartoon use improves students' learning experience and promotes better understanding. Different groups may be motivated by videos and online tutorials through different features and benefits. Based on the research, female and young students preferred the use of animated videos because they made learning enjoyable.

On the contrary, male counterparts enjoyed learning through animated ideas because they were more efficient in explaining complex aspects. The use of videos also enables students to pause and refresh or get past a disturbance which maximizes concentration. All these benefits of using videos and online tutorials enhance learning efficiency and motivate students to learn.

## 2.10 *E-Learning Among Accounting Students*

Technical aspects such as accounting heavily rely on the teachers' efficiency of delivering the various aspects. Understanding balance sheets, cash flows, and other mathematical concepts may require consultation with teachers to capture the concept vividly. However, with the measures taken to curb the spread of Covid 19, physical classes and consultation were limited. In Saudi Arabia, research revealed that accounting students did not benefit from online studies as physical education. They preferred traditional learning because it provided a better platform to communicate with teachers on areas that need clarification (Ebaid 2020).

E-learning was quickly adopted in response to covid 19, which developed various challenges, especially to accounting students. The urgency of implementing e-learning did not provide institutions with adequate time to train their lecturers and students on how to operate digital learning platforms (Sigroha 2020). For example, accounting students in Saud Arabia complained of unfamiliarity with the systems and button icons in e-learning, undermining their understanding. Aini et al. (2020) discovered that accounting teachers were not given enough training on delivering technical aspects to students. The presentation of software notes was not enough for students to understand the concepts. This resulted in students seeking other channels such as YouTube tutorials to understand complex tasks that reflect low-quality delivery. According to this research, students preferred a blend of physical classes and learning rather than a fully digitalized approach. Another challenge of understanding accounting is difficulties related to network strength. According to Hermawan et al. (2021), most e-learning students fail to understand accounting because of poor network signals and speed. e-learning might be necessary during Covid 19, but it is not the best way to deliver accounting aspects to students.

However, some accounting students enjoyed learning through e-learning. They enjoyed the flexibility and the freedom of studying on their phones and laptops. (Hermawan et al. 2021) They concluded that accounting students were entirely motivated to study through e-learning during Covid 19. The freedom to do assignments at home and present them through digital platforms motivated many to adapt to e-learning. The research portrayed that majority of these students had high emotional intelligence and exercised self-control in time management and learning schedules. Therefore, some accounting students enjoyed eLearning during Covid 19 and even performed as compared to traditional classes. To maximize this outcome, the e-learning platforms should be easy to use, and students should be provided with some form of training before full endorsement of online learning.

The issue of the credibility of online studying of accounting has emerged. Hiring decisions in the future will be influenced by how the certification was achieved. Employers are likely to doubt the competency of an online degree holder and may be disadvantaged during interviews (Richards et al. 2018). It is realistic to doubt the practicality of implementing accounting methods acquired online at the workplace. However, according to Sun (2018), the internet era has added competency and diversity to accounting. The interaction with online tools familiarizes learners with virtual

accounting tools, which are essential in field operations. The online graduate will also have a higher capacity to understand and adapt to new accounting systems at workstations. Hence, e-learning has diversified accounting, and employers should perceive online graduates as equally competent as traditional learning graduates.

### ***2.11 Challenges Facing E-Learning During Covid-19***

In spite of the fact that, learners and parents indicated that there are numerous positive outcomes for the implementation of the e-learning during the period of covid-19 in addition to enjoying highly effective educational experiences especially in the accounting major through online learning during the pandemic, there are some challenges that confronted all the parties involved in online learning during the pandemic. Online learning did not only start during the pandemic since it was considered as a means through which educational experiences could be enriched. Many countries decided on making use of the online learning platforms to support the endeavours exerted by traditional education institutes at all levels.

Numerous efforts were exerted to improve the online learning experiences especially for University students. It has been reported that accounting students in particular were provided with many opportunities to learn online since 2015. Various studies were conducted to explore the opportunities and challenges that confront the implementation. Such studies paid due attention to all the possible factors that are likely to positively or negatively influence the e-learning experiences. The outcomes of these studies ensured that employing educational technology in teaching and learning accounting students in particular has been found to be quite adequate. Some of the most interesting of these outcomes pointed out that the covid-19 pandemic has an outstanding influence on the quality of e-learning (Byun and Slavin 2020).

This has been attributed to numerous factors related to the pressures that students and the higher education institutes confronted during the pandemic. In addition, the overall atmosphere and the students mental and physical status during this period. Many researchers suggested that further studies need to be conducted to focus on the challenges that occurred and faced e-learning during the pandemic taking into account some mediating variables.

More studies have been conducted in the past few months in order to investigate the significance of e-learning and carried out further analyses about the weaknesses and challenges for e-learning in the time of the pandemic (Bataineh et al. 2020). These studies cared for generating the most possible guidelines that enable instructors and learners to address the probable challenges of e-learning during natural disasters and epidemics. One of these studies cast light on the case adolescent e-learners in Pennsylvania, the USA. This study concentrated on the fulfilment of entirely online virtual schooling via middle school. The research spot light to the features of the academic, social support, learners, as well as the educational support they could receive. The outcomes ensure the essentiality of the roles played by the

instructors in e-learning, in addition to the involvement of the parents are main partners in enhancing the e-learning experiences and their contributions to improve the students' academic achievement. Further to that a survey was carried via the International Association of Universities 2020 and spotlight on identifying the influences of COVID19 on a global scale especially on higher education institutes. The outcomes of this survey pointed out that all the practices of higher education institutes have been influenced by the COVID-19 pandemic and in particular e-learning that was presented as a solution for the students' inability to attend physically at schools and classrooms. The findings reflected the existence of negative impacts on the quality of e-learning. The worst thing seemed to be the inequity experienced between students to learn online. In the MENA context, a study that was conducted two years before the pandemic cast light on the utilization of Blackboard as a motivator in English language learning and teaching. The outcomes of this study tackled an essential issue which is some learners could be motivated to exert more effort while learning English via the Blackboard platform (e-learning). There are other learners who felt demotivated through dependence on the Blackboard (Ali 2017). Another study that was conducted in the Kingdom of Saudi Arabia and cast light on the quality of e-learning during the pandemic ensured that e-learning for the University students represents a step towards the future; however, more and significant efforts have to be exerted to improve the university students' experiences in e-learning (Alturise 2020).

Many countries including the kingdom of Bahrain have presented various models and mechanisms for dealing with the learning crisis during the period of the Corona pandemic. Of course, the decisions taken were successful in all of these models for conducting the educational process with different management method based on available capabilities and cultures prevailing in every society. All of these models agreed on the need to limit the presence of students in classrooms as much as possible, with a focus on providing technological alternatives since the beginning of the pandemic. The developments of the situation and the creation of various vaccinations for citizens in each country in addition to the ability of each country to controlling the rate of spread of the virus among the population plus some other factors related to the nature and density of the demographics in each society, all played a role in the direction of the leadership in each country towards returning students to their institutes in various ratios and mechanisms based on the aforementioned set of criteria and other criteria related to parents' concerns about their children (Dhawan 2020).

The different models in managing the corona virus pandemic faced a set of challenges and difficulties, which varied from one country to another, but there were challenges that were common to all models, especially those discussed in the current study. Among the most prominent of these challenges that resulted from the adoption e-learning during this pandemic the following:

### **Prevention of Direct Learning at Universities**

E-learning could not have completely replace direct learning, which involves levels of interaction between the parties of the learning process, as these processes usually contribute to the social and educational upbringing of students. Under the umbrella of e-learning students learn from distance. There are no opportunities for face to



face interaction. Accounting students in particular need to hold discussions with their counterparts to reach solutions for specific problems they face. Lack of direct interaction may result in unsatisfactory outcomes (Yildiz et al. 2020).

### **Students' Social Isolation**

The decision to close universities and learning from distance was very dangerous. This is attributed to the creation of a negative impact on students' social skills. University classes are not only a place for education but are also centers for practicing social activities and human interaction. These social activities are part and parcel of the accounting students' future work (Bataineh et al. 2020).

### **Unwillingness of Parents to Go Through the Experience with their Children**

Shutting the university classrooms contributed to parents bearing a large part of the burden in teaching and following up on their children. They have to be a facilitating role in the educational process for their children. Parents often face difficulty in performing this task, especially for parents with limited education and resources.

### **The Difficulty of Achieving Equal Access to Digital Learning Platforms**

The issue of universities closures has forced accounting students to only take the advantage of and rely on technology in order to study through digital platforms and distance education programs. However, the deteriorating state of the digital infrastructure has stood to some extent in some countries that suffer from weak internet services as an obstacle to achieving the principle of equality and equal educational opportunities, in which only a small segment of students can take full advantage of this opportunity, while students from the poor segments cannot achieve the same benefit or even part of it.

### **Disparity in Student Care**

In the case of parents working, they will not be able to care and facilitate the students' e-learning experiences during the pandemic. This leads to the students' inability to achieve the benefits, while the absence of parental follow-up may contribute to children engaging in dangerous behaviors, including cyberbullying with their colleagues (Alanezi and AlAzwani 2020).

### **Lack of Awareness and an Integrated Perception of E-learning Among the Parties Involved in the E-learning Process**

Although Universities have plans to digitize learning for a long time, and teachers were providing digital contents, in the case of the complete transformation of e-learning, some accounting lecturers were not ready enough for such a step. With this intensity, as preparing one hour of e-learning usually requires long hours of work and preparation. In addition to that, lecturers in some accounting institutes do not have sufficient knowledge of the mechanism of e-learning, and the same is the case for students and parents (Marinoni et al. 2020).

### **The Difficulty of Controlling E-learning on a Large Scale and for Large Numbers**

Providing e-learning services to millions of students or hundreds of thousands synchronously or even asynchronously on a daily basis is not easy issue. This requires huge capabilities that may not be available even in developed countries, and at the same time It requires the state to bear a significant financial cost (Pellegrini et al. 2020).

### **Assessment and Exams Challenge**

One of the toughest challenges faced while providing e-learning for accounting students was the process of evaluating students and executing exams with the same accuracy as they were previously done. There are opportunities for students to cheat from their classmates. The assessment would never be an accurate thing (Rajab et al. 2020).

## **3 Conclusion and Findings**

The research of this paper has been studied in order to meet the main objectives and to examine the level of COVID-19 impact on E-learning and Understanding of Accounting. Also, the study was done to investigate the various challenges of Accounting E-learning during COVID-19. In this paper we have searched around more than 45 studies, literatures and articles that were done by different researchers in order to reach the study's objectives and findings. Therefore, the findings of our research had shown that there was a significant influence on the E-learning done by the COVID-19 pandemic and that this pandemic had increased the level of E-learning use specially after all universities and schools are operating virtually. Yet, this has also led us to other findings that illustrated the main challenges facing the study of accounting E-learning process as it seemed to be difficult for accounting educators to deliver their education electronically to the learners. On the other hand, it was found that E-learning has greatly enhanced the education sector specially during the current pandemic that made it a necessity to be implemented for all levels of education including pre-schools, schools, universities and institutions.

Findings showed that E-learning is significant as it enables introverts to share their ideas without appearing in public openly. Secondly, it offers the flexibility of learning, enabling students to multitask learning while undertaking their daily chores. E-learning is also a time saver and cost-effective to learners, lecturers, and institutions, enabling more learners to be enrolled in schools (Ikeda and Ueda 2017). Lastly, the use of video and animated illustrations has made education more realistic and enjoyable for students. However, accounting students have offered different opinions on e-learning. Students in Saudi Arabia perceived online writing as non-beneficial and had adverse effects on understanding concepts (Ebaid 2020). In contrast, students in other universities enjoyed studying accounting through eLearning and showed incredible improvement during the COVID-19 period.

Findings and outcomes were reached in order to investigate and examine the level of the independent variable impact on the dependent variable. Thus, resulted in outcoming that the COVID-19 pandemic has significant impact on the E-learning process and increased and enhanced the efficiency and effectivity of E-learning during this period of life.

## 4 Recommendations

However, for students to fully benefit from e-Learning, the institution must offer training on using and operating online platforms (Hermawan et al. 2021). Therefore, for accounting e-learning to be efficient, lecturers and students should be provided with some form of training before full endorsement of online learning. The availability of few pieces of research on accounting e-learning might limit future researches in the area.

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# The Causation of Online Game Addiction Among University Student



**Mahathir Muhamad, Mohd Zulkifli Muhammad,  
Muhammad Naqib Mat Yunoh, Zul Karami Che Musa,  
Abd Aziz Mat Hassan, Ahmad Ridhuwan Abdullah, and Fatihah Mohd**

**Abstract** This research aims to identify the causation of online game addiction among university student. This study tested three hypotheses, namely (1) Relationship between psychological factor and online game addiction, (2) Relationship between technological factor and online game addiction, (3) Relationship between media factor and online game addiction. This study obtained a sample of university students, using a questionnaire survey was conducted on 105 samples. The factors are developed from justice theory. The quantitative methodology is adopted for this study and the result shows that all the variables are supported by the carried out the analysis.

**Keywords** Justice · Psychological factor · Technological factor · Media factor

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M. Muhamad (✉) · M. Z. Muhammad · M. N. M. Yunoh · Z. K. C. Musa · A. A. M. Hassan ·  
A. R. Abdullah · F. Mohd  
Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, 16100 Kota Bharu,  
Kelantan, Malaysia  
e-mail: [mahathir.m@umk.edu.my](mailto:mahathir.m@umk.edu.my)

M. Z. Muhammad  
e-mail: [zulkifli.m@umk.edu.my](mailto:zulkifli.m@umk.edu.my)

M. N. M. Yunoh  
e-mail: [naqib@umk.edu.my](mailto:naqib@umk.edu.my)

Z. K. C. Musa  
e-mail: [zul@umk.edu.my](mailto:zul@umk.edu.my)

A. A. M. Hassan  
e-mail: [abdaziz.mh@umk.edu.my](mailto:abdaziz.mh@umk.edu.my)

A. R. Abdullah  
e-mail: [ridhuwan.a@umk.edu.my](mailto:ridhuwan.a@umk.edu.my)

F. Mohd  
e-mail: [fatihah.m@umk.edu.my](mailto:fatihah.m@umk.edu.my)

# **1 Introduction**

## ***1.1 Background of Study***

Nowadays, the majority of people use technology. When technology advances, it grows by simply clicking to make things simpler for individuals. Even the Internet is very open for individuals. The Internet is the largest medium we use to connect around the world today. Playing online games is one of these things. It is a type of indoor gaming that is normally used on a computer or mobile device. Offline games are commonly played in single games, whereas online games require the internet to link players around the world or communicate. The online gaming that the Internet offers. As a result, online games are extremely popular for individuals, especially students, because they can easily access the internet and are downloaded free of charge (Iowa State University 2011).

## ***1.2 Problem Statement***

Online games are meant to draw students for hours on end. When they play sports, most students experience a sense of strength and accomplishment. They have little financial freedom in the modern world and are trapped in the uncomfortable void between infancy and adulthood. Playing an online game offers an escape from life for them.

Online games offer a sense of excitement to sedentary students. When they are facing a new challenge in a game, some students get an addictive adrenaline rush. Most games often have different levels of ability that work to draw the gamer in. The gamer earns a reward and feels a sense of satisfaction with each new level reached. Games such as massive online role- playing multiplayer games (MMORPG) are highly addictive. In order to progress, these types of games force the player to perform tasks, and sometimes players must work together in an online forum as teams. The more time students spend in front of a computer or mobile screen, the less time they have to deal with their assignments or socialize with peers. They are more sedentary as well, which can lead to health issues.

When a student starts playing the game online more often and longer, it can have some lasting impact on their lives. Students have spotted failure in education achievement and relationship due to their online game addiction.

## ***1.3 Objective***

This research is carried out with the primary goals of understanding the causation of online game addiction among university student. This research specifically aims to; (1) to investigate the relationship between the psychological factor and online game

addiction among university student. (2) to identify the technology variables that lead to addiction to online game among university student. (3) to analyzing whether media factors can trigger online gaming addiction among university student.

### ***1.4 Scope of Study***

Online game addiction research is still a fairly recent condition. There are not many researchers doing this study about how to formulate any preventions, especially for students. Since excessive online game addiction is the problem, it can have a serious unforeseen effect on both the gamer and the people around them. Moreover, this research focus on the causation of online game addiction among university students.

This study offers solutions to the problem and thus help to find ways to eventually avoid and prevent it from being addictive. Moreover, with the information collected, some students could find solutions for online gaming addiction to improve their academic performance.

## **2 Literature Review**

### ***2.1 Psychological Factor***

This research focuses on researching the potential causation of online game addiction among university students. Unlike drug abuse, the biological aspect of video game addiction is unknown. Study shows that gambling raises dopamine, but there is more to addiction than brain chemistry (Aminova and Marchi 2021; Rooij 2010). The addict is suffering from a psychological aspect of the addiction. Online gaming helps a person to escape the real world and shift the sense of self-esteem (Rooij 2010). An addiction to an online game is not so far removed from opioid addiction. Virtual life becomes more enticing than real life. Compared to the risks of a drug overdose, too much gaming may seem relatively harmless, but experts warn video game addiction can destroy lives. Students who play four to five hours per day have no time for socializing, doing assignments, or playing sports leaving little time for normal social development. According to Lan Ying Huang (2011), players of online games can also see the games as a source of diversion and filling time by playing the online game features. It seems that students who play games to get away from their lives or pretend to be other individuals are most at risk of being part of a vicious circle. These players escape their issues by playing games, which in turn interfere with their lives because they're too busy playing games.



## **2.2 Technological Factor**

According to Carme Mangiron (2021), developers and publishers have been ensuring the most of their attempts to increase the reception of online gamers. People keep track of the latest version of the game to enable them follow the pattern. Online game incentive schemes, such as achieving a high level in the game, gaining new weapons, can also inspire players to play online (Choi et al. 2007). According to Choi et al., the aspect that affects addiction is the role of satisfying interdependence. This happens because online players are drawn to the task and incentive of the game. There are a number of challenges and prizes from various types of games. The rise in this addiction is due to technology. Technologies have continued to innovate over time. Addictions to electronic devices such as online game have been referred to as ‘technological addictions’ (Griffiths 1995; Nassar 2018).

## **2.3 Media Factor**

The role of the media in promoting the games also contributes to why such games would be more popular in the addicted games. Unintentional advertisement processing, unconscious learning states, and retentive exposure effects in advertisement and marketing literature remain intensely debated topics (Aminova et al. 2020; Mick 2003). In their immediate surroundings, people often do not consciously include or process any of the commercials (Bauer and Greyser 1968; Webb and Ray 1979). According to Wood (2008), media hype regarding video game addiction may encourage some of the concerned relatives to define totally natural actions as problematic. The fundamental consideration is that the influence of in-game ads relies on the respective method of processing, which is in turn influenced by factors dependent on stimuli and person thresholds (Mau and Silberer 2008).

## **2.4 Hypothesis Development**

There are three hypotheses conducted for this study, which are:

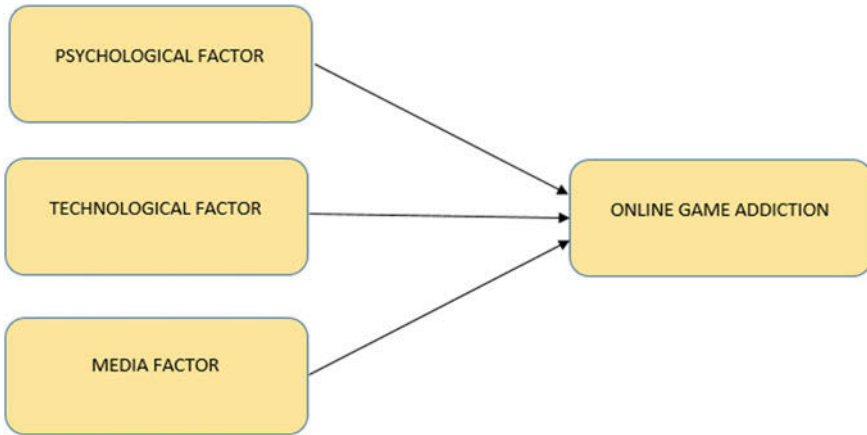
H1: To investigate the relationship between the psychological factor and online game addiction among university student.

H2: To identify the technology variables that lead to addiction to online game among university student.

H3: To analyzing whether media factors can trigger online gaming addiction among university student.

## **2.5 Conceptual Network**

(See Fig. 1).



**Fig.1** Conceptual framework

### **3 Methodology**

#### **3.1 Research Design**

The purpose of the research design is to provide an appropriate framework for the study. The choice to be made regarding the research approach is a very important decision in the research design process, since it determines how the relevant information for the study obtained. In order to provide a solution, research can be described as a systematic and organized effort to investigate a particular problem (Sekaran 2000).

According to Smith et al. (2003), quantitative research employs the traditional, positivist, experimental, or empiricist method to enquire into an identified problem. Quantitative is based on the analysis of a theory, measured by numbers and analyzed using statistical techniques, and emphasizes objectivity and reproducibility in particular (Smith et al. 2003). A structure questionnaire was designed to obtain the data on the causation of online game addiction among university students. The data were then being analyzed to discover the relationship.

#### **3.2 Data Collection**

Data collection is a process of gathering information from all relevant sources to find answers to the research problem, to test the hypothesis and to evaluate the

results. Methods for data collection can be split into two categories: primary data and secondary data.

### **Primary Data**

In this study, data collection is through primary data collection method which is a common online survey questionnaire. An online questionnaire is used to gather information from university students. Next, the SPSS and Smart PLS is used as a tool to identify and examine information on the basis of a questionnaire.

### **Secondary Data**

Secondary data is the data that has already been collected and made readily available for researchers to use for their own research through primary sources. It is a form of information that has already been gathered in the past.

## ***3.3 Sample Size***

Sample size in any statistical context is a count of individual samples or findings. The size of the sample is an essential aspect of any scientific analysis in which the aim is to draw inferences from the sample. In this research, the population from which the samples were derived conducted on the university students. The most appropriate sample size for this research is 105. There means that 105 university students were used to answer questionnaires. Hence, the questionnaires were distributed randomly for those people that can express their willingness to respond to this survey.

## ***3.4 Sampling Techniques***

Sampling technique as a method used by a researcher to determine how to choose or identify the individual survey units that would be used as study respondents. The convenience sampling was selected for the sample in this study. Convenience sampling is a form of non- probability sampling technique in which samples are chosen for the target population due to their convenient usability and accessibility to the researcher. Elements are picked for the survey depending on the convenience of the researcher in convenience sampling (Black 2011). Researchers are easier to identify the respondents among the population by selecting convenience sampling, since the respondents select based on their availability and willingness. In fact, the convenience sampling method would effectively minimize the time and expense of this research.

## 4 Data Analysis

### 4.1 Data Analysis

The SPSS and Smart PLS application were used in this chapter to evaluate the data obtained from respondents and the effects of statistical analysis. The result included demographic section such as gender, marital, age, ethnicity, type of university, education level and preferred online game, dependent variable which is online game addiction. The researcher distributed questionnaires through Google form for respondents to answer. There is a three-part data analysis used: descriptive statistics followed by Cronbach’s Alpha and Frequencies Statistic. Multiple Linear Regression (MLR) is to test the strength of variables between the dependent variable and independent variables.

### 4.2 Findings

The reliability test was carried out on the independent variables to check the measurement instrument’s internal consistency. The Cronbach’s Alpha for all variables scales was in the range of 0.7 to 0.91. They were well above the minimum acceptable reliability of 0.6 as suggested by (Hulin et al. 2001). The result for the first independent variable which is psychological factor has value of 0.853. This means that the result of Cronbach’s Alpha is acceptable. Next, the result of Cronbach’s Alpha for technological factor has value of 0.843 which is acceptable. Moreover, the result for media factor has value of 0.917. This means that the result of Cronbach’s Alpha is excellent. Thus, the actual reliability test was obtained for this study is reliable (Table 1).

Partial Least Square (PLS) Algorithm and Bootstrapping used in this study describe the relationship between the independent variables and dependent variable by using the term of beta coefficient and p-value. The result indicated that psychological factor value ( $\beta = 0.614$ , t-value = 6.628, p-value = 0.000), technological factor value ( $\beta = 0.436$ , t-value = 2.515, p-value = 0.012), and media factor value ( $\beta = 0.318$ , t-value = 1.854, p-value = 0.064) (Table 2).

**Table 1** The result of actual reliability test for each section of questionnaire

| Variable              | Number of items | Cronbach’s alpha | Strength of association |
|-----------------------|-----------------|------------------|-------------------------|
| Online game addiction | 5               | 0.752            | Good                    |
| Psychological factor  | 5               | 0.853            | Acceptable              |
| Technological factor  | 5               | 0.843            | Acceptable              |
| Media factor          | 5               | 0.917            | Excellent               |

**Table 2** Beta coefficient, T-value and P-value among independent variables

|                      | Beta coefficient | T statistics | P-value | Significant     |
|----------------------|------------------|--------------|---------|-----------------|
| Psychological factor | 0.614            | 6.628        | 0.000   | Significant     |
| Technological factor | 0.436            | 2.515        | 0.012   | Significant     |
| Media factor         | -0.259           | 1.854        | 0.064   | Not significant |

## 5 Discussion and Conclusion

This paper conducted a questionnaire survey on studying the causation of online game addiction among university student. According to the research result, psychological factor, technological and media factor have a remarkable impact on university student. This study's significant contribution was to investigate the psychological factor, technological factor and media factor that influence to online game addiction. However, this study proposed a substantial relationship between the independent variable and the dependent variable. Therefore, the objectives of this study have been achieving. While the data analysis was vigorously conducted using SPSS tools and validated, the results are limited by the sample size. As a result, the student's perceptions identified by the study are based on perceptions from university students. The limitations of this study point towards topics to be addressed in the future. Game addiction among students in Malaysia will continue to evolve. The following are a few areas for future research; a) Malaysian university student's perception on privacy and security of gaming in-purchasing, b) Study on effect to university student's causing of game addiction.

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# Entrepreneurship Education on Entrepreneurial Intention Among University Students in Malaysia



Choy Kah Yung, Abdullah Al Mamun, and Anas A. Salamah

**Abstract** This study aimed to understand entrepreneurship education and the relationship with student intention towards entrepreneurship. In the past, study shows that entrepreneurship education is irrelevant towards the intention of entrepreneurship and there is inconsistent finding on the influence of entrepreneur education towards entrepreneurial intention. The TPB has been adopted with EE and ERM to provide a more holistic study in the Malaysia context. The method of cross-sectional study designed and collected quantitative data from a total of 235 university students through an online survey for this study.

Findings of this study revealed that entrepreneurship education and entrepreneurial role model has a significant positive effect on ATE, SN, and PBC. Furthermore, ATE and PBC have a significant positive effect on EI among university students in Malaysia. This is an important reference for entrepreneurship programmes and courses to understand if their pedagogy and environment provided in the institute are encouraging entrepreneurship intention.

**Keywords** Entrepreneurship · Entrepreneurship education · Entrepreneurial intention · Theory of planned behavioural

## 1 Introduction

In 2019, Malaysian government has announced the National Entrepreneurship Policy 2030 with the objective to inculcate the culture of entrepreneurship and hope

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C. K. Yung (✉)

UCSI Poll Research Centre, Malaysia. No. 1, Jalan Menara Gading, UCSI Heights (Taman Connaught), Cheras, 56000 Kuala Lumpur, Malaysia  
e-mail: [choyky@ucsiuniversity.edu.my](mailto:choyky@ucsiuniversity.edu.my)

C. K. Yung · A. Al Mamun

UKM - Graduate School of Business, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Malaysia

A. A. Salamah

Department of Management Information Systems, College of Business Administration, Prince Sattam bin Abdulaziz University, 165, Al-Kharj 11942, Saudi Arabia

the sector to contribute 50% of GDP and create 80% job opportunities. Cultivate entrepreneurship has become a priority in many countries' public policy (Luthje and Franke 2003) as this is always associated with economic growth, innovation commercialization, and job creation (Lackeus 2015), the relations between entrepreneurial activities and economic growth was further supported by empirical research (Vann Praag and Versloot 2007). In line with the country's direction, entrepreneurship education is promoted by higher educational institutions as an element or programme in nurturing students with entrepreneurial awareness and equipping the students with skills and competencies to become an entrepreneur in the future globalization marketplace (Nabi and Holden 2008). There is an assumption that entrepreneurship skills are transferable knowledge (Kuratko 2005), however, there is no consistency of teaching and assessment method for entrepreneurship education (Gerba 2012). The theory in constructing methodologies and results on building a theory of entrepreneurial learning has not clearly been identified and agreed (Leitch and Harrison 2008). Entrepreneurship education is found to be an influential factor on students' intention to become an entrepreneur (Franke and Lüthje 2004; Hmieleski and Corbett 2006; Schwarz et al. 2009).

The aim of this study is to understand entrepreneurship education and the relationship with student intention towards entrepreneurship. In the past, study shows that entrepreneurship education was irrelevant towards the intention of entrepreneurial (Støren 2014; Oosterbeek et al. 2010) and there is inconsistent finding on the influence of entrepreneur education towards entrepreneurial intention. Hence, the study of entrepreneurship education by applying into Malaysian context may provide a better understanding of the influence towards entrepreneurial intention in Malaysia. The next section of this paper is the literature review, followed by research methodology, data analysis, discussion, and lastly conclusion.

## 2 Literature Review

Entrepreneurship used to be an intention of a person to start up a firm and transformed it into actual action. The entrepreneurship intention is then raised and recognised as an important indicator in measuring entrepreneurship. A literature review shows that entrepreneurial universities may be able to foster economic growth by helping students in starting their own venture as hypothesized in the triple helix model (Clark 2001; Etzkowitz et al. 2000). The education for entrepreneurship is then developed and believed to be able to increase the entrepreneurial intention of students. The results from the "Global University Entrepreneurial Spirit Students Survey" (GUESS) show that participants in entrepreneurship education program (EEP) are in general with the higher intention to start up their own business, either directly or five years after their studies, in comparison to non-participants.



## ***2.1 Entrepreneurial Education (EE) and Entrepreneurial Role Model (ERM)***

EE is the education that equips students with entrepreneurship knowledge, improving their entrepreneurship ability and cultivating the entrepreneurial spirit and creativity in developing new ideas for business. The literature reviews showed that entrepreneurship major students generally have higher entrepreneurship intention (Kolvereid and Moen 1997; Chen et al. 1998; Rideout and Gray 2013).

The ERM is identified as an influence in increasing the EI (Bandura 1997; Van Auken et al. 2006a, b) and this will ultimately convert into entrepreneurial activity (Krueger et al. 2000). The role model plays an important role by leading as an example to an individual in behaviour, characteristics, or goals and for them to learn certain skills and abilities (Gibson 2004). Inviting entrepreneurs as guest speakers is an important feature for the entrepreneurial courses (Mueller 2006), and this exploratory study has widened the understanding of entrepreneurial role models that can be applied by entrepreneurship education.

## ***2.2 Theory of Planned Behaviour (TPB)***

The TPB was introduced that the intention is an effective forecaster for individual planned behaviour and this is adopted by entrepreneurship academic scholars (Krueger et al. 2000; Bird 1988). The TPB is developed with the constructs of attitude towards entrepreneurship (ATE), perceived behavioural control (PBC), subjective norms (SN), and entrepreneurial intention (EI).

**Entrepreneurial Intention (EI).** EI is a state of mind of an individual directing attention, experience and action towards a goal, where entrepreneurship is often found to be an intentional behaviour (Shapiro 1982; Bird 1988; Vesalainen and Pihkala 1999). The Intention of entrepreneurship was suggested as an indicator to determine the effectiveness of EE, and later the focus shift to the impact of EE on the EI of students. The EI is often examined by researchers with variables including attitudes, perceptions of control, and self-efficacy (Cox et al. 2002; Fayolle et al. 2006; Botha et al. 2006). The participation of schools and universities in EE was seen to increase in schools and universities (Peterman and Kennedy 2003; Robertson et al. 2003). This is believed to increase the intention of students entrepreneurial through the cultivation of the environment.

**Subjective Norms (SN).** SN is one of the constructs in TPB which measured the perception and support from the network of an individual. The SN of a person is normally parents and their close friends (Scott and Twomey 1988) where the influences are more impactful. This is normally referring to the social pressure from their network and influencing an individual's behaviour of an action. The SN has been categorised into normative belief and motivation to comply (Ajzen 1991, Krueger

et al. 2000). The literature review shows inconsistent of the influence of SN where the significance varies from different contexts (Krueger et al. 2000; Linan and Chen 2009, Gholami and Al Tahoo 2021).

**Attitude Towards Entrepreneurship (ATE).** The entrepreneurship education research argues that entrepreneurial attitude is associated with the proactive character of an individual, which is the students' attitude (Crant 1996; Gartner 1990; Thompson 2009). Studies on normative and descriptive researches have supported the typical personality characteristics of entrepreneurs in relation to the EE (Carland et al. 1984). Among the various individual characteristics that affecting including risk-taking propensity, entrepreneurial behaviour, need for achievement, need for independence, and locus of control have been examined and found in relation to the EI (Ciappei et al. 2016). In fact, the literature review shows, these variables have been recognized as important proactive attributes fostering entrepreneurship by researchers traditionally (Crant 1996; Lüthje and Franke 2003). The empirical study further supports that intentions and behaviour are interrelated factors (Kolvereid 1996; Krueger et al. 2000).

**Perceived Behavioural Control (PBC).** The PBC is similar to entrepreneurial self-efficacy which is derived from the self-efficacy that was proposed by Bandura (1997). The PBC is the measurement of individuals in performing target behaviour with reflects of their confidence level and capability (Ajzen 2002; Chen et al. 1998). The literature review shows that PBC is one of the strongest influences on EI (Armitage and Conner 2001; Magnussen 1997; Krueger et al. 2000).

### 3 Research Methodology

#### 3.1 Sample Selection Process and Collection Process

In this research, we stratified the sample into two subgroups which are public universities and private universities as the facilitating and learning environment in these two sub-groups are generally different. The selected universities for public universities Universiti Kebangsaan Malaysia (UKM), Universiti Malaysia Sabah (UMS), Universiti Malaysia Sarawak (UNIMAS), Universiti Teknologi MARA (UiTM), Universiti Utara Malaysia (UUM), Universiti Malaysia Perlis (UMP); and the selected private universities are UCSI University, UOW Malaysia KDU University College, Universiti Tunku Abdul Rahman (UTAR), Management and Science University (MSU), INTI International College University, SEGI College, and New Era University College. Universities from public and private sectors were selected and this is followed by a non-probability sampling method for sampling collection in the selected universities.

The survey questionnaire was distributed online and due to limited resources and Malaysia's personal data protection act (PDPA), the full contact list of the students in the selected universities was not reachable. The sample collection process has adopted two methods which are the voluntary and snowball method. Assistance from the closed network in reaching out to the selected public and private universities and inviting university students to participate in the online survey. The received respondents were also invited to share the surveys with their course mates which may snowball the sampling.

The survey is a mixture of probability and non-probability sampling. This begun with probability sampling, where stratified random sampling was adopted in selecting universities; and continued with non-probability sampling where voluntary and snowball methods were adopted.

### ***3.2 Research Instrument and Variable Measurement***

The survey questionnaire design of this study is inclusive of six (6) sections. Each section consists of questions between 5 to 7 and comprised a total of **36** questions in the survey form of this questionnaire that was adopted in this study. The questionnaires were designed with polar question expected respondents in choosing one possible opinion answer by using 7-point for all variable items with the anchors of 1 (Total Disagreement) to 7 (Total Agreement) (Table 1).

## **4 Data Analysis**

### ***4.1 Descriptive Statistics***

The survey was conducted out through the digital collection method, and an estimation of 600 questionnaire surveys was distributed. The total collection of 235 responses was received from the targeted 384 respondents based on the proposed sample size from the targeted population. The final sampling has reached a 61.2% response rate for the survey, and this is statistically sufficient in generalizing the results based on G\*Power. All the data are recorded with no data missing and analysed by using SmartPLS, to carry out the descriptive and inferential analysis. The demographic profiles of respondents are presented in Table 2.

The respondent's gender profile is meeting with the gender parity index (GPI) in Malaysia's higher education in the public sector (1.7) and private sector (0.98) (Tienxhi 2017). As Malaysia's higher education consists of two main streams which are private and public universities and the survey participated respondents from both public universities and private universities and in a nearly equal ratio. While the

**Table 1** Classification of study variables

| Variables | Example  | No. of items | Reference             |
|-----------|--|--------------|-----------------------|
| ERM       | Role model around respondents who were self-employed (family members, close friends, university mates) | 6            | Bosma et al. (2012)   |
| EE        | Perceived entrepreneurship education environment (coursework, initiation, development, active support) | 7            | Franke (2004)         |
| ATE       | Attitude reflects respondent’s personal belief toward entrepreneurship intention                       | 5            | Linan and Chen (2009) |
| SN        | Alleged social pressure toward a behaviour (family, close friends, people around)                      | 6            | Mahmood et al. (2009) |
| PBC       | Personal’s assessment of the behaviour to be performed in terms of difficulties                        | 6            | Linan and Chen (2009) |
| EI        | Intention of respondents to be self-employed in future   | 6            | Linan and Chen (2009) |

**Table 2** Respondents demographic profiles

| Demographics             | Category          | Frequency, n | Percentage, % |
|--------------------------|-------------------|--------------|---------------|
| Gender                   | Male              | 94           | 40            |
|                          | Female            | 141          | 60            |
|                          | Total             | 235          | 100           |
| University               | Public university | 112          | 47.7          |
|                          | Public university | 123          | 52.3          |
|                          | Total             | 235          | 100           |
| Work experience          | Yes               | 156          | 66.4          |
|                          | No                | 79           | 33.6          |
|                          | Total             | 235          | 100           |
| Self employed experience | Yes               | 102          | 43.4          |
|                          | No                | 133          | 56.6          |
|                          | Total             | 235          | 100           |

work experience and self-employed experience from respondents is to provide a better understanding of the respondents on their exposure.

## 4.2 Reliability and Validity Test

The reliability test ensures the consistency and stability of the test component in the survey instrument, indicators of Cronbach's Alpha ( $\alpha$ ), roh-A, and Composite Reliability (CR) used for this test. The reliability test is accepted as the  $\alpha$ , rho-A, CR value for all construct items is above 0.70.

The Validity test is the measurement of the instrument for the present concept's wellness (Sekaran et al. 2016). The validity test including analysis on the convergent validity in approving the uni-dimensionality for each construct (Hair et al. 2017), and the discriminant validity in ensuring there is an absence of correlations between constructs that are not related in the theory. In this study, the convergent validity is measured by using the Average Variance Extracted (AVE), and variance inflation factor (VIF); while the discriminant validity is measure by using the Fronell-Larckern criterion (FL) and Heterotrait-Monotrait ratio (HTMT) in measuring the discriminant validity.

The AVE values are accepted as all construct items are above 0.50, and the VIF values are all accepted as all construct items are below 3. This is then followed by FL analysis, where the value of all constructs is less than 0.70 except the construct of ATE-EI which is 0.719. Although ATE-EI is above 0.70, we consider accepting this as the value is 0.019 slightly higher. The HTMT value of all constructs is less than 0.90 and accepted for the validity test.

## 4.3 Path Analysis

The path analysis between EE and SN shows a significant relationship ( $\beta = 0.255$ ,  $p = 0.000$ ), and this supported Hypothesis H<sub>1</sub>. The path analysis between EE and ATE shows a significant relationship ( $\beta = 0.163$ ,  $p = 0.019$ ), and this supported Hypothesis H<sub>2</sub>. The path analysis between EE and PBC shows a significant relationship ( $\beta = 0.247$ ,  $p = 0.000$ ), and this supported Hypothesis H<sub>3</sub>. The path analysis between EE and EI shows an insignificant relationship ( $\beta = -0.082$ ,  $p = 0.054$ ), and this rejected Hypothesis H<sub>4</sub>. The path analysis between ERM and SN shows a significant relationship ( $\beta = 0.396$ ,  $p = 0.000$ ), and this supported Hypothesis H<sub>5</sub>. The path analysis between ERM and ATE shows a significant relationship ( $\beta = 0.555$ ,  $p = 0.000$ ), and this supported Hypothesis H<sub>6</sub>. The path analysis between ERM and PBC shows a significant relationship ( $\beta = 0.392$ ,  $p = 0.000$ ), and this supported Hypothesis H<sub>7</sub>. The path analysis between ERM and EI shows a significant relationship ( $\beta = 0.098$ ,  $p = 0.027$ ), and this supported Hypothesis H<sub>8</sub>. The path analysis between ATE and EI shows a significant relationship ( $\beta = 0.447$ ,  $p = 0.000$ ), and this supported

**Table 3** Path analysis

|                | Beta   | 5.0%   | 95.0%  | T statistics<br>( O/STDEVI) | P values | Decision      |
|----------------|--------|--------|--------|-----------------------------|----------|---------------|
| H1: EE -> SN   | 0.255  | 0.153  | 0.385  | 3.699                       | 0.000    | Supported     |
| H2: EE -> ATE  | 0.163  | 0.045  | 0.307  | 2.088                       | 0.019    | Supported     |
| H3: EE -> PBC  | 0.247  | 0.140  | 0.370  | 3.494                       | 0.000    | Supported     |
| H4: EE -> EI   | -0.082 | -0.172 | -0.002 | 1.611                       | 0.054    | Not supported |
| H5: ERM -> SN  | 0.396  | 0.269  | 0.509  | 5.457                       | 0.000    | Supported     |
| H6: ERM -> ATE | 0.555  | 0.424  | 0.649  | 8.248                       | 0.000    | Supported     |
| H7: ERM -> PBC | 0.392  | 0.263  | 0.507  | 5.341                       | 0.000    | Supported     |
| H8: ERM -> EI  | 0.098  | 0.013  | 0.179  | 1.938                       | 0.027    | Supported     |
| H9: ATE -> EI  | 0.447  | 0.337  | 0.545  | 7.005                       | 0.000    | Supported     |
| H10: PBC -> EI | 0.429  | 0.337  | 0.526  | 7.598                       | 0.000    | Supported     |
| H11: SN -> EI  | 0.020  | -0.071 | 0.116  | 0.353                       | 0.362    | Not supported |

Hypothesis H<sub>9</sub>. The path analysis between PBC and EI shows a significant relationship ( $\beta = 0.429$ ,  $p = 0.000$ ), and this supported Hypothesis H<sub>10</sub>. The path analysis between SN and EI shows an insignificant relationship ( $\beta = 0.020$ ,  $p = 0.362$ ), and this rejected Hypothesis H<sub>11</sub> (Table 3).

## 5 Discussion

### 5.1 Hypotheses Findings

After reviewing the hypothesis results, the hypotheses will be grouped into four groups for an effective discussion. Group one includes H<sub>1</sub>, H<sub>5</sub>, H<sub>11</sub>, group two includes of H<sub>9</sub>, H<sub>10</sub>, group three includes H<sub>2</sub>, H<sub>3</sub>, H<sub>4</sub>, and group four includes H<sub>6</sub>, H<sub>7</sub>, H<sub>8</sub>.

The hypotheses in group one, where H<sub>1</sub> and H<sub>5</sub> are accepted and H<sub>11</sub> is rejected. These findings show that EE and ERM have a significant relationship with SN. However, the SN as mediating factor does not have a significant relationship with the EI. The finding implies that SN is not relevant in the EI although both EE and ERM are in relation with it. Hence the SN can be excluded in the future study of EE on EI. Universities may pay less attention to the SN, for instance how a student's family and peers perceived and social pressure on their path in becoming an entrepreneur, and the resources and attention should be channeled to other impactful areas.

The hypotheses in group two, where H<sub>9</sub>, H<sub>10</sub>, are both accepted, and shows that attitude towards entrepreneurship and perceived behavioural are both in significant relationship to entrepreneurial intention. This finding is in line with research done

by researchers before, and this will further support our discussion in group three and group four.

The hypotheses in group three, where  $H_2$ ,  $H_3$ , are accepted and  $H_4$  is rejected. The  $H_4$  shows that EE's direct relation with the EI is not significant. However, this can only show that EE is not directly related to EI. This is further analysed by referring to the findings in group two where  $H_9$  and  $H_{10}$  are accepted, and in this group of findings show  $H_2$  and  $H_3$  are accepted. Hence, this shows that the relationship between EE and EI is a complete mediation. The ATE and PBC is the mediating variable in this relationship. The universities when designing the programme and courses for EE should understand that taking the EI may not be a valid measurement for the achievement of the programme although this is the ultimate goal to be achieved. Instead, universities should focus and aim to sculpt students' ATE and PBC which will lead to the goal of EI ultimately.

The hypotheses in group four, where  $H_6$ ,  $H_7$ ,  $H_8$  are accepted. This shows that the ERM has a significant relationship in both direct and indirect to the EI, and the ATE and PBC are the mediating variables in these relationships. This implies that ERM is playing an influential role in improving students' EI, and the universities can create role models for students by providing the facilities such as mentoring, coaching, and inviting successful entrepreneurs for sharing. The EE may require a different approach in designing the pedagogy, as entrepreneurship requires high self-esteem in order to succeed and the role model may be a drive or belief to the start-up entrepreneurs when facing challenges.

The study has highlighted implications on the EI of university students in Malaysia is highly affected by the EE. The EE is not directly influencing students' EI, instead is an indirect effect through mediating variables of ATE and PBC. The findings show ERM is an important independent variable that influencing the EI in both direct and indirect ways. The empirical study further confirmed on the previous research from literature reviews that SN has no significant value to EI. Since the SN is beyond the capacity of EE, the SN can be neglected in the proposed theory which studying the EE and ERM on TPB.

## 6 Conclusion

The entrepreneurship education is playing an important role in preparing university students and inspired them to become an entrepreneur for the future development of the nation. The preparation for students with entrepreneurship skills instead of training students to start up a business motivate them to perceive success in self-employed (Reyad et al. 2020). The study results show a consistent finding where entrepreneurship education is not in a direct effect with the entrepreneurial intention, and to be achieved through factors of attitude towards entrepreneurship and perceived behavioural control.

In the digital era, skills of technology and innovation are increasing in their importance for entrepreneurship and directly affecting the performance of startup

businesses (Aminova et al. 2020; Aminova et al. 2021). However, the agility limitation of course syllabus in education institutions has failed to adapt to the trend changing in time. The entrepreneurial role model is an important factor in complementing the limitation of education as the practitioners may share their knowledge, experience, skills, and trend in the market with students. The collaboration between institutions and practitioners may extend to incubators will increase the success rate of an entrepreneur (Aminova et al. 2021).

The subjective norms reflecting the social influences are always found inconsistent in findings as it is highly relying on the context of the country. This study shows that subjective norm is irrelevant in this study, where the perception from family members and friends has become insignificant in influencing one's entrepreneurial intention. This may be due to various reasons, such as young generations are less concerned about the perception of others, and entrepreneurs are generally more driven by self-efficacy. We may understand that the youth generation is moving out from collective culture in comparison to the previous generation, and we may expect more entrepreneurs due to their independent characteristics.

This study concludes that entrepreneurship education is a driving factor for entrepreneurs' intention and is important for institutions to learn the agility limitation of the education syllabus in adapting to the technology and trend changing. Innovation in education delivery methods is important and collaboration with practitioners may be one of the alternatives.

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