

Investigating the Psychological Relationship between Technology Acceptance and E-Learning Readiness among English as a Second Language (ESL) Students

¹Kamilah Zainuddin, ²Amaal Fadhlini Mohamed,
³Najihah Mahmud, ⁴Hasnah Ab Kadir, ⁵Nur Hafifah
Jamalludin

Received: 10- June -2023
Revised: 17- July -2023
Accepted: 13- August -2023

¹Postgraduate Student in Language Studies and Human Development at Faculty of Language Studies and Human Development, Universiti Malaysia Kelantan, Email: mila@pkb.edu.my

²Senior Lecturer in Language Studies and Human Development at Faculty of Language Studies and Human Development, Universiti Malaysia Kelantan, Corresponding. Email: fadhlini@umk.edu.my

³Senior Lecturer in Language Studies and Human Development at Faculty of Language Studies and Human Development, Universiti Malaysia Kelantan, Universiti Malaysia Kelantan, Malaysia. Email: najihah.m@umk.edu.my

⁴Senior Lecturer in Language Studies and Human Development at Faculty of Language Studies and Human Development, Universiti Malaysia Kelantan, Universiti Malaysia Kelantan, Malaysia. Email: hasnah.ak@umk.edu.my

⁵Lecturer in Language Studies and Human Development at Faculty of Language Studies and Human Development, Universiti Malaysia Kelantan, Universiti Malaysia Kelantan, Malaysia. Email: hafifah.j@umk.edu.my

Abstract

Purpose: The purpose of this study was to look into ESL students' technological acceptance and level of readiness to utilize CIDOS 3.5 LMS as an e-Learning tool at Politeknik Kota Bharu in Kelantan, Malaysia.

Theoretical framework: The researchers here used a few tried-and-true research methods. The Technology Acceptance Model (TAM) by Davis (1989) was employed to determine technology acceptance while the Chapnick Readiness Model (Chapnick, 2000) was used to assess the level of e-Learning readiness.

Design/methodology/approach: 285 diploma students from the Department of Civil, Mechanical, and Electrical Engineering at Politeknik Kota Bharu, Kelantan in Malaysia were selected at random to participate in the study representing the ESL students. To analyze the data that was obtained from the survey, both descriptive and inferential statistics were utilized.

Findings: The implementation of e-Learning among ESL students resulted in a very high acceptance and level of readiness. It has been discovered that the degree to which ESL students' overall technology acceptability correlates with their overall e-Learning readiness in a significantly high relationship. Furthermore, there is no difference in the e-Learning technology acceptance among ESL students to utilize e-Learning at Politeknik Kota Bharu, Kelantan based on their gender or courses of study, but there is a difference in their acceptance to utilize e-Learning based on the type of devices used.

Research, Practical & Social Implications: The findings of the study provide a solid and workable reason to improve and sustain the implementation of e-Learning among ESL students at Malaysia Politeknik.

Originality/value: The positive views of ESL students have implications for curriculum designers and instructors in that they highlight the need to rethink and redesign the e-learning materials to incorporate e-Learning opportunities for ESL students to explore.

Keywords: e-Learning, Technology Acceptance, ESL e- Learning, TVET Students, e-Learning for ESL, e-Learning Readiness

INTRODUCTION

As a result of the global spread of the COVID-19 virus, Malaysian educational institutions and how students are taught and educated have undergone dramatic changes, moving away from traditional classroom settings and toward virtual ones (Kamal et al., 2020; Temitayo, 2020). The Politeknik Kota Bharu (PKB) has no exception to the trend toward virtual education. Using the CIDOS (Curriculum Information Documentation Online System) Learning Management System (LMS), version 3.5 was integrated to facilitate e-Learning at PKB. All PKB English language instructors incorporated e-Learning into their pedagogy among the English for Second Language (ESL) students. CIDOS 3.5 was defined as a web-based solution for efficient and effective resources over curriculum document supply, Teaching and Learning (T&L) resources, and data entry (Hasnan, & Mohin, 2021) through the use of CIDOS 3.5 LMS to transmit T&L between instructors and students digitally. Shida et al. (2018) found that TVET students' use of LMS at Polytechnic Sultan Ibrahim, Malaysia, was widely accepted. The fact that CIDOS 3.5 LMS has been beneficial to students is encouraging. Abdullah, Saud, and Kamin (2019) found that e-Learning improves the quality, accessibility, and acceptability of learning resources; it also allows for collaborative learning activities and increases the number of chances students have to develop their own professional and personal skills.

Pebriantika et al. (2019) claimed that e-Learning is strengthened and supported by students' actions and incorporating student feedback on lecture activities that incorporate mobile technology is one strategy for creating more interesting learning media (Pebriantika et al, 2019). However, the instructors still have questions about the interactivity and communication effectiveness of the activities provided and the approach used during e-Learning which may explain why many students have a negative reaction to e-Learning. While e-Learning has the potential to provide students with a fresh start with its adaptability, transparency in pedagogy, and wealth of online resources, poorly implemented e-Learning can still cause difficulties for some students (Pebriantika et al, 2019). It's important to note that PKB instructors went through e-Learning without any insight into how their students reacted to it. The negative opinions can have an immediate impact on the usability and effectiveness of the classroom (Alhumaid, Habes & Salloum, 2021). If the point of e-Learning is to help students learn something, then finding out what they think about how and why it works is crucial. Moreover, the motivation for this study was the lack of previous research on the subject of ESL students on e-Learning.

Although e-Learning is a relatively new technique of instruction, it has tremendous potential for the future of education, according to Sonmez et al. (2018), because of its ability to stimulate students' interest in the learning process by providing them with access to a range of settings. The facilitation of knowledge access, social engagement, and networking is also a benefit of e-Learning (Sonmez et al, 2018). As a result, the purpose of this study is to determine how students assess their preparedness in light of the fundamental concepts of the Technology Acceptance Model (TAM) (Davis, 1989) and the Chapnick Readiness Model (Chapnick, 2000). This paper delves into the following topics:

RQ1: What is the student's level of readiness according to the Chapnick Readiness Model in e-Learning?

RQ2: What is the level of TAM main constructs of acceptance, Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude towards Usage (ATU), and Behavioral Intention (BI) to use CIDOS 3.5 LMS as an e-Learning tool among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?

RQ3: Is there any significant relationship between the level of e-Learning readiness to use CIDOS 3.5 LMS as an e-Learning tool and TAM main constructs of acceptance, Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude towards Usage (AU), and Behavioral Intention (BI) among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?

RQ4: Is there any difference in the TAM to use CIDOS 3.5 LMS as an e-Learning tool based on the demographic variables? (i.e. gender, type of electronic devices, and course of study among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?)

LITERATURE REVIEW

Many educators and academics are increasingly looking at the possibilities of e-Learning to support a wide range of learning settings and activities. According to Alanezi and Nasser (2020), Alshurideh et al. (2019), and Shao (2020), the majority of students have a good attitude toward the use of e-Learning in higher education settings. Furthermore, Ozsari and Saykili (2020) focus on the advancement of e-Learning and the opportunities it provides by utilizing graduate theses. According to the findings, e-Learning can improve academic performance, develop a positive attitude toward e-Learning itself, foster motivation, and foster a positive attitude toward the graduate school course being studied. The data also showed that e-Learning is an efficient, enjoyable, and effective approach for acquiring new vocabulary and improving engagement, regardless of the participant's location or the amount of time spent on the activity.

Over several decades, mobile technology such as cell phones, smartphones, and tablets has been steadily integrated into educational institutions and online education around the world. Many scholars have investigated why students learn and their perspectives on e-Learning (Eorn, 2021). He claims that they were able to address critical concerns concerning the diversity of students' motivations and acceptance of e-Learning. Students' intrinsic and extrinsic motivation, aids cognitive learning process characteristics such as interaction between students and between students and instructors, as well as metacognitive self-regulated learning processes (Sun & Gao, 2020). Students' preparation for the final achievement test has been facilitated through the utilization of mobile applications, which have allowed for their learning to be managed from any location at any time (Alanezi & Nasser, 2020). Students were seen as favorably positive in using the mobile application in other classes since they appreciated the corrected feedback and it was available to them (Klimova & Polakova, 2020).

e-Learning is a practice that has been used in higher education since the past, and it has seen widespread implementation during the COVID-19 pandemic (Caldag, Gokalp, and Alks, 2021). e-Learning has been implemented in the teaching and learning process at Malaysian Higher Education institutions; however, the extent to which e-Learning is practiced varies from region to region, particularly concerning the acceptance of e-Learning by the individuals who are involved in teaching and learning (Al-Rahmi et al, 2021). e-Learning can be described as a body, a supplementary learning method, an additional tool while making assignments, collecting data and documentation, and it can also be described as a medium for teaching and learning. Harwati and Yunus (2018) stated that the applications used for e-Learning in Malaysian education with a focus on the Polytechnic setting were giving a high impact on the student's motivation and interest to study. Shida et al. (2018) also discovered that the use of CIDOS 3.5 LMS as an e-learning tool by 60 Diploma engineering students at Polytechnic Sultan Ibrahim (PIS) Malaysia is at a high level of acceptance when they are studying. In addition, a study by Ying, Mohamad, and Nasir, (2022) found an encouraging sign that students used CIDOS 3.5 LMS during their learning process because it could provide an increment of institutional status, improve the landscape of education, and provide flexibility to students' lifelong learning. Isa, (2020) also indicated that there was an encouraging sign that students applied the use of CIDOS 3.5 LMS during their learning process, especially among ESL students who have access to a wide variety of useful resources, can participate in a wide range of activities, and can communicate with both their classmates and instructors (Azli et al, 2018).

Additionally, a study by Hasnan and Mohin (2021) specified that the English lecturer's perceptions regarding the utilization of the e-Learning platform for language classrooms need an expansion of the understanding of the CIDOS 3.5 LMS acceptance among Malaysia's Polytechnic higher education instructors, as well as a reference for areas of study that are related to the topic. Fabian et al. (2021) discovered that the instructor's comprehension of essential technological skills is important to make sure adequate preparation before conducting e-Learning. Hence, the integration of e-Learning demands educators to cultivate more conducive learning environments for their students (Azli et al 2018).

Asia's result of its rapid growth of mobile technology, e-Learning has arisen as an important component of online education, allowing students to learn whenever and wherever they want via mobile devices and wireless internet (Ustun, 2019). According to Camilleri and Camilleri (2020), there are significant links between students' willingness to use mobile technology for learning and their behavioral intention to do so (Camilleri & Camilleri, 2020; Moorthy et al., 2019). Students also supported and welcomed the use of mobile devices in e-Learning settings for educational purposes, and it was discovered that a variety of factors, such as relative benefit and complexity, social impact, perceived enjoyment, and self-management, influenced students' readiness to implement e-Learning (Al-adwan et al., 2018; Ustun, 2019). Safieiet al., i (2017) on the other hand, highlighted that the e-Learning applications that had been implemented had benefited ESL students in making the educational process more accessible and efficient when compared to the traditional mode of instruction. To support this claim, it has been established that the use of mobile technology in the learning process among students obtaining a diploma at Politeknik Malaysia is an effective and potentially aided learning tool (Harwati, & Yunus, 2018).

In addition, Padmanathan and Jogulu (2018) discovered that the majority of ESL students at Politeknik Tuanku Sultanah Bahiyah (PTSB), Malaysia, exhibited high levels of readiness for the implementation of e-Learning when respondents cited equipment and technological skill readiness as the most important skills required during an M-Learning session. This finding was based on the fact that respondents cited equipment and technological skill readiness as the most important skills required during an e-Learning session. They claimed that they had a solid comprehension of how to operate the gadgets and were generally well-equipped to do so since it was delivered through pre-recorded lectures that were then uploaded to Google Classroom and YouTube which was the method that was most well-received by the students. However, findings from a study conducted by Chung et al. (2020) showed that although a large number of students are ready for e-Learning in general, more than half of the students in the survey indicated that they would prefer not to continue with e-Learning in the future due to the difficulty that the students had, particularly concerning their connectivity to the internet. Therefore, to ensure that the benefits of mobile technology can be fully utilized, polytechnic institutions need to find a way to overcome the challenges that are now being faced by the users (Hashim et al. 2018).

Davis (1989) established the Technology Acceptability Model (TAM), which is frequently used in the educational field to analyze stakeholders' technological acceptability toward e-Learning. According to a study conducted by Mousa, Aldeen, Nasir, and Hamdi (2020), students are ready to accept e-Learning despite many obstacles such as a shortage of ICT hardware/software and a weak Internet connection. Kaushik and Agrawal (2021) have performed research on the impact of technology on e-Learning adoption. The survey results revealed that students had a favorable view toward the e-Learning strategy. This preadoption of e-Learning platforms fills them with a sense of excitement and innovation. Al-Araibi, Mahrin, and Yusoff (2019) found that one of the most essential factors of e-Learning preparation is the technology aspect, which plays an important role in developing an effective and efficient e-Learning system. Furthermore, Ke (2022) discovered that the association between the participants' technology acceptance and e-Learning readiness was marginally connected in a study among English language school instructors in Kota Kinabalu, Sabah. Nevertheless, Navani and Ansari (2020) carried out a study of the e-Learning readiness of teachers at a state agricultural university and discovered that the teachers were 'e-Learning ready but need improvements in certain areas to make it more effective and successful,' which confirmed the findings of Rafiee and Abbasian-Naghehi (2021), who demonstrated the complex relationships between perceived usefulness, perceived ease of use, e-Learning motivation, online communication self-efficacy, and latent.

Based on the key points and conclusions of the aforementioned literature regarding the connection between technological acceptance and readiness for e-Learning. Only a small number of studies have looked into how technology adoption and e-Learning readiness relate in the Malaysian environment.

DATA AND METHODOLOGY

Participants

In this quantitative study, a descriptive research method was utilized so that the researchers could learn more about the current condition of the problem and depict the characteristics of the population. The listed courses

that the chosen ESL students were enrolled in included diploma programs in civil engineering, civil engineering (quantity surveying), electrical engineering, electronic engineering, communication, mechanical engineering, mechanical engineering (automotive), mechanical engineering (mechatronics), and mechanical engineering (agriculture). Using the chart that Krencjie and Morgan (1970) created for a population of 1100, we can determine that the sample size has to be 285 respondents. As a result, the 285 samples came from people who were recruited through simple random sampling. In this particular instance, the characteristics of the responder for this study are the ESL students who have been utilizing CIDOS 3.5 LMS as an e-Learning tool for the entirety of the Communicative English 1 course, which spans a total of 14 weeks. These 14 weeks are broken up into a weekly 1-hour lecture and a 2-hour tutorial, bringing the total number of hours spent on the e-Learning process using CIDOS 3.5 LMS to a total of 42. The students have completed a 14-week e-Learning process that was conducted entirely through e-Learning. During the lectures and tutorials, the students did not engage in any form of physical connection with the instructors.

Instrument

A questionnaire was used throughout this research project to collect responses to all of the research topics. The purpose of the pilot study was to determine the reliability and validity of the questionnaire that was utilized in this study. The pilot study was carried out on thirty students enrolled in PKB 1 semester who had been using CIDOS 3.5 LMS for fourteen weeks. An examination of the reliability of the data was carried out using the Cronbach Alpha method; the results of this analysis should have Cronbach Alpha values that are higher than 0.6. (Hair et.al.2010). According to the findings of this research, the average Cronbach Alpha values for all variables were $\alpha=0.95$, which is a number that is greater than 0.6. In terms of the actual study, the value of Cronbach's Alpha that was found was $\alpha=0.96$. Therefore, the answers to the questions on the questionnaire will be used for this study.

Data Analysis

To evaluate the research questions provided in the study, the questionnaires will be gathered from the respondents and analyzed using SPSS 26.0. Microsoft Excel, and the Statistical Package for Social Science 26 (SPSS 26) are the two main tools used for data analysis and interpretation. First, SPSS 26.0 is used to examine the study's numerical data. The data are processed using both descriptive and inferential statistical analysis to address the previously given research topics. The descriptive statistical analysis intends to use the value of the mean, frequencies, and standard deviation to answer the research question 1 and 2; are "What is the level of technology acceptance to integrate CIDOS 3.5 LMS as an e-Learning tool e-Learning among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?" and "What is the level of readiness to integrate CIDOS 3.5 LMS as an e-Learning tool among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?". Meanwhile, research question 3 "Is there any significant relationship between technology acceptance and e-Learning readiness among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?" and research question 4 "Is there any significant difference in ESL students at Politeknik Kota Bharu, Kelantan, Malaysia acceptance to utilize e-Learning at Politeknik Kota Bharu, Kelantan, Malaysia, based on the demographic variables (i.e., gender, course of study, types of device used and English language Malaysia Examination (SPM) grade)?" will be analyzed by inferential statistics analysis such as t-test and ANOVA as well as Pearson's correlation.

RESULTS AND DISCUSSION

The majority of respondents (n = 203) are male (71.2%), while the female respondents (n = 82) make up 28.8% of the total respondents. In addition, questions on five different types of devices were asked to determine the respondents' preferred method of accessing the CIDOS 3.5 LMS. A smartphone, laptop, tablet, personal digital assistant (PDA), and other devices were among them. According to the results, the smartphone (n=192) accounted for 67.4% of the overall proportion of devices used by the respondents, followed by other types of devices with 19.8% and laptops with 9.1%. Tablets account for the smallest share of all devices, at 3.9%. It demonstrates that the majority of respondents utilize smartphones when engaging in e-Learning. Eight different courses of study were engaged as well. The majority of participants in this study came from the Diploma in Electrical Engineering (n=68) with a response rate of 23.9%,

followed by the Diploma in Civil Engineering (Quantity Surveying) with a response rate of 59, or 20.7%. Following that, in 55 or 19.3% of the responses are from the Diploma in Civil Engineering, n=41 or 14.4% are from the Diploma in Electrical Engineering (Electronics), and n=32 are studying the Diploma in Electronic Engineering (Communications), which has a student body of 11.2%. Additionally, 6.0% of respondents (n=17) reported having completed a Diploma in Mechanical Engineering (Agricultural). Following this are n=9 (3.2%) respondents who have a diploma in mechanical engineering (mechatronics), and n=4 (1.4% of the total respondents) who have a diploma in the field of mechanical engineering.

RQ1: What is the level of readiness (i.e., psychological readiness, technological skills readiness, human resource readiness, content readiness and equipment readiness) to use CIDOS 3.5 LMS as an e-Learning tool among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?

Table 1: A Summary of e-Learning Readiness Constructs

e-Learning Readiness Constructs	Number of Items	Overall Mean Values	Comments
Psychological readiness	3	4.44	e-Learning is ready to go ahead to achieve successful e-Learning implementation.
Human resource readiness	4	4.345	e-Learning is ready to go ahead to achieve successful e-Learning implementation.
Technological skills readiness	5	4.436	e-Learning is ready to go ahead to achieve successful e-Learning implementation.
Equipment readiness	4	4.274	e-Learning is ready to go ahead to achieve successful e-Learning implementation.
Content readiness	4	4.362	e-Learning is ready to go ahead to achieve successful e-Learning implementation.
Total e-Learning readiness	20	4.371	e-Learning is ready to go ahead to achieve successful e-Learning implementation.

According to the results presented in Table 1, the overall e-Learning readiness averaged 4.371 compared to the expected level of readiness (>3.41), which was above the recommended cutoff value of 3.41. In general, the e-Learning readiness of ESL students at Politeknik Kota Bharu, Kelantan, Malaysia considered to be adequate, as evidenced by the reasons listed below. In addition, when evaluating each component of e-Learning readiness, it was discovered that psychological skills readiness received the highest mean score of 4.44, followed by technological readiness with a value of 4.436. The mean showed that they had reached a high satisfactory level of e-Learning preparedness for both of them. The participants' content readiness, human resource readiness, and equipment readiness were also found to be adequate when compared to the other dimensions because their mean values were all higher than the advised 3.41. The e-Learning preparedness of ESL students at Politeknik Kota Bharu, Kelantan, Malaysia, was found to be generally prepared and ready, with a mean that exceeded the minimum required level for e-Learning (4.371). To establish whether ESL students were ready for e-Learning, several factors were considered, including their psychological readiness, human resource readiness, technological skill readiness, equipment readiness, and content readiness. The results generally showed that they were prepared to implement e-Learning. They specifically outperform the

average in terms of psychological readiness, human resource readiness, technological skill readiness, equipment readiness, and content readiness.

RQ2: What is the level of TAM main constructs of acceptance, Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude towards Usage (ATU), and Behavioral Intention (BI) to use CIDOS 3.5 LMS as an e-Learning tool among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?

Table 2: The Results of Cumulative Technology Acceptance Among Participants

Technology Acceptance Construct	Number of items	Overall Mean	Level
Perceived Usefulness	8	4.432	High
Perceived Ease of Use	10	4.394	High
Behavioral Attention	5	4.451	High
Attention Toward Use	3	4.411	High
Total	26	4.422	High

Table 2 shows that a total of twenty-six items were utilized to assess the level of technology adoption among 285 participants. As could be seen, participants' results had a mean score of 4.422 altogether. They had a high level of overall technology acceptability, making e-Learning for English for ESL students at Politeknik Kota Bharu possible. It is determined that ESL students at Politeknik Kota Bharu have a high level of technology acceptance to incorporate e-Learning into instruction generally. In particular, according to the mean values of each measuring construct, their perceptions of e-Learning's usefulness, ease of use, attitudes towards usage, and behavioral intentions have all achieved high levels.

RQ3: Is there any significant relationship between the level of e-Learning readiness to use CIDOS 3.5 LMS as an e-Learning tool and TAM main constructs of acceptance, Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude towards Usage (ATU), and Behavioral Intention (BI) among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?

Table 3: The Results of Correction Analysis

	Psychological Readiness	Human Resource Readiness	Technological Skills Readiness	Equipment Readiness	Content Readiness	Cumulative of e-Learning Readiness
Perceived usefulness	0.788**	0.812**	0.781**	0.778**	0.833**	0.798**
Perceived Ease of Use	0.776**	0.795**	0.785**	0.794**	0.812**	0.792**
Attention toward Use	0.770**	0.773**	0.774**	0.760**	0.798**	0.775**
Behavioral Intention	0.763**	0.756**	0.767**	0.729**	0.789**	0.760**
Cumulative of Technology Acceptance	0.774**	0.784**	0.776**	0.765**	0.808**	0.781**

(*: iCorrelation is significant at the 0.05 level (2-tailed),

(** : iCorrelation is significant at the 0.01 level (2-tailed).)

Based on Table 3, a total of 285 responses gathered from respondents were used for the correlation analysis, and since no missing data were discovered in the data set, no cases would be eliminated from the study. Using Pearson correlation analysis, the correlation study sought to determine the association between participants' acceptance of technology (a dependent variable) and their readiness for e-Learning (an independent variable). The directions and intensities between two observed variables are revealed by a Pearson

correlation analysis (Pallant,2016). The Pearson correlation coefficient, abbreviated as "r," ranges from -1 to +1. It is also possible to tell whether a connection is positive (+) or negative (-) by looking at the sign before the values. Schober, Boera, and Schwarte (2018) gave a guideline for the coefficient in addition to the correlation coefficient "r." (a) 0.00-0.10 (negligible correlation), 0.10-0.39 (weak correlation), 0.40-0.69 (moderate correlation), 0.70-0.89 (high correlation), 0.90-1.00 (very strong correlation). Furthermore, preliminary analyses revealed no violations of the assumptions of normality, linearity, and homoscedasticity. Furthermore, the question's alternative hypothesis was supported, and a relationship between participants' technology acceptability and e-Learning readiness was discovered.

Table 3 shows a correlation between perceived usefulness and psychological readiness ($r=0.788$, $n=285$, $p=0.00$, high relationship), human resource readiness ($r=0.812$, $n=285$, $p=0.00$, high relationship), technological skills readiness ($r=0.781$, $n=285$, $p=0.00$, high relationship), equipment readiness ($r=0.778$, $n=285$, $p=0.00$, high relationship), content readiness ($r=0.833$, $n=285$, $p=0.00$, high relationship). One may conclude that higher levels of perceived usefulness are related to higher degrees of psychological readiness, technological skill readiness, equipment readiness, content readiness, and overall acceptance of technology.

Moreover, perceived ease of use also had a positive relationship with psychological readiness ($r=0.776$, $n=285$, $p=0.00$, high relationship), human resource readiness ($r=0.795$, $n=285$, $p=0.00$, high relationship), technological skills readiness ($r=0.785$, $n=285$, $p=0.00$, high relationship), content readiness ($r=0.812$, $n=285$, $p=0.00$, high relationship), total e-Learning perceived ease of use ($r=0.792$, $n=285$, $p=0.00$, high relationship). Higher levels of perceived ease of use were found to be associated with high levels of psychological readiness, technological skills readiness, content readiness, and equipment readiness.

Additionally, attitude towards usage was positively correlated with psychological readiness ($r=0.770$, $n=285$, $p=0.00$, high correlation), human resource readiness ($r=0.773$, $n=285$, $p=0.00$, high correlation), technological skills readiness ($r=0.774$, $n=285$, $p=0.00$, high correlation), content readiness ($r=0.798$, $n=285$, $p=0.00$, high correlation), and total e-Learning technology acceptance ($r=0.775$, $n=285$, $p=0.00$). Hence, with better levels of attitude toward usage correlated with high levels of psychological readiness, technological skills readiness, content readiness, and overall technology acceptability, this may be guaranteed.

Apart from that, behavioral intention had a significant relationship with psychological readiness ($r=0.763$, $n=285$, $p=0.00$, high relationship), human resource readiness ($r=0.756$, $n=285$, $p=0.00$, high relationship), technological skills readiness ($r=0.767$, $n=285$, $p=0.00$, high relationship), content readiness ($r=0.789$, $n=285$, $p=0.00$, high relationship), total e-Learning acceptance of behavioral intention ($r=0.760$, $n=285$, $p=0.00$, high relationship) except equipment readiness. As a result, there is a correlation between higher levels of behavioral intention to use and higher levels of psychological readiness, technological skill readiness, content readiness, equipment readiness, human resource readiness, and overall readiness of technology.

Last but not least, there was a significantly high correlation between total technology acceptance and psychological readiness ($r=0.744$, $n=285$, $p=0.00$, high relationship), human resource readiness ($r=0.784$, $n=285$, $p=0.00$, high correlation), technological skills readiness ($r=0.776$, $n=285$, $p=0.00$, high relationship), equipment readiness ($r=0.765$, $n=285$, $p=0.00$, high correlation), content readiness ($r=0.808$, $n=285$, $p=0.00$, high correlation). It might be said that more technological acceptance is correlated with a greater readiness level and overall acceptance of technology.

Based on the analysis above, there is a significant relationship between technology acceptance and e-Learning readiness among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia. Hence, the psychological, human resource, equipment, content, and technological readiness factors are connected in a significantly high relationship with perceived usefulness, perceived ease of use, behavioral intention to use the e-Learning among the ESL students at Politeknik Kota Bharu, Kelantan, Malaysia.

RQ4: Is there any difference in the TAM to use CIDOS 3.5 LMS as an e-Learning tool based on the demographic variables? (i.e., gender, type of electronic devices, and course of study among ESL students at Politeknik Kota Bharu, Kelantan, Malaysia?)

As shown in Table 4, a t-test was conducted to directly compare the complete acceptance of e-Learning among males and girls. assigned that identical variances were not initially

assumed, the data was assigned a p-value of 0.624 ($p > 0.05$), which shows that the data met the assumption of equal variance. Therefore, the study's results showed that there was no discernible difference between the respondents' genders in terms of their general approval of e-Learning. Therefore, it is feasible to conclude that the gender of ESL students at Politeknik Kota Bharu, Kelantan, Malaysia did not significantly affect their approval of using e-Learning.

Table 4: The Results of ANOVA for Participants' Total e-Learning Acceptance Based on Type of Devices Used

	Levene Statistic	df1	df2	Sig.
Total e-Learning acceptance	0.277	2	141	0.759

Table 5: Anova Analysis on the Type of Devices Used

Type of Devices	Sum of Squares	df	Mean Square	F	Sig.
	9.225	7	1.318	4.084	0.000

**Correlation is significant at the 0.05 level (1-tailed).

A one-way ANOVA test was run on Tables 4 and 5 to examine the effect of respondents' type of devices used on their overall acceptance of e-Learning. The type of devices used to split the participants into three categories (smartphone, laptop, tablets, PDA, and others). Levene's test yielded a result of 0.759 for the significance value, ($p > 0.05$); thus, the premise of homogeneity of variance was not violated. However, the significant value of the ANOVA, which was 0.00, was lower than the specified cut-off point of 0.05. As a result, the hypothesis (H_{2b}) was accepted. Thus, it was confirmed that the mean value of respondents' overall e-Learning acceptance significantly differs dependent on the type of devices used by the ESL students.

Discussion

It has been discovered that ESL students have a very high level of technology acceptability and readiness for using e-Learning. In addition, the sort of gadgets utilized affects how well ESL students accept online learning. The student's gender and degree of study, however, had little bearing on whether they accepted online learning. Additionally, there is a strong correlation and influence between the level of readiness and ESL students' embrace of technology. The study also showed that in e-Learning, there is a strong correlation between the kind of devices utilized and the students' adoption of technology. It can be concluded that when the students possess a high level of acceptance of e-Learning, the type of devices used is important in their e-Learning process and vice versa. It may be inferred that the type of devices used in the students' e-Learning process is crucial when they have a high level of acceptance of e-Learning, and vice versa.

The statements that e-Learning is easy to use, helpful for students, and favorable to education and personal development stated by Ozsari and Saykili (2020) and Han and Sa (2022) are also in line with these findings (Panergayo, 2021). This finding is consistent with studies by Denan et al. (2020) and Tahar et al. (2020), which discovered that readiness has a significant impact on the adoption of e-Learning, with the adoption of technology practices making the learning process more adaptive and practical. The results of earlier studies by Qazi et al. (2021) and Widodo, Wibowo, and Wagiran, (2020) show a strong link between student readiness and participation in online learning sessions. Additionally, the respondents believe that e-Learning will benefit them.

All statement items received high percentages of perceived usefulness, perceived ease of use, attention to use, and behavior intention. The findings gave light on why respondents thought e-Learning was beneficial to their jobs. This study's findings are congruent with those of Hashimi and Md. Yunus (2018), Wardana, Saputro, Wahyuddin, and Abas (2022), and Wicaksono and Maharani (2020). Students are eager to employ technology in their study because of the advantages and benefits it provides. Alshurideh et al. (2019) and Shao (2020) discovered similar results, revealing the direct and strong influence of perceived usefulness on

behavioral intention to utilize e-Learning platforms. A higher perceived usefulness correlates with a greater likelihood of using it.

Meanwhile, results for items measuring the ESL students' acceptance of e-Learning showed similar optimism. According to these results, all of the students think that e-Learning is simple. Students are encouraged to make full use of e-Learning because it is intuitive, and adaptable, and will make it simple for them to locate the content covered in class. Attractive and varied media like animation, video, social forums, infographics, padlet, etc. are used to present the material. This is in agreement with the findings of studies by Al-Siyabi, and Yota, (2020), and Makmor, Aziz, & Alam Shah, (2019), all of which found that e-Learning improves students' learning and engagement, fosters better student-student interaction, and presents dependable and established learning via a wide range of provided learning materials. This finding, in line with the findings of studies by Qashou (2021) and Saroia & Gao (2019), explains how students' acceptance of e-Learning's ease of use affect their enthusiasm for the technology. While Alturki and Aldraiweesh (2022) and Stal and Paliwoda (2019) came to similar conclusions, finding that e-Learning has a positive and constructive influence on the actual usage of e-Learning in higher education, particularly in encouraging students to use e-Learning in the classroom and to collaborate with their peers at higher education institutions due to its ease of use during the COVID-19 pandemic.

This research also found that the levels of technology acceptance and readiness by the ESL students of e-Learning sessions were all strongly correlated which is in line with research from Kurniasih et al. (2020), Aziz, Rami, Razali and Mahadi, (2020), Chen and Aklikokou, (2020), Setiyani, Effendy and Slamet, (2021), and Lanlan, Ahmi & Popoola (2019). Several researchers, including Harwati and Md. Yunus (2018); Malik and Annuar (2021), have found that mobile technology can be an efficient and promising aid to education, particularly for Polytechnic students (Syahrudin, 2021). According to previous research conducted by Chirchir, Aruasa, and Hebon (2019); Sheppard and Vibert (2019), amongst others, the users' technology acceptance is strongly influenced by their readiness. As a result, motivation toward online is affected by factors such as knowledge quality and technology fit.

CONCLUSION

The goal of this study is to discover the ESL students' technology acceptance of e-Learning in terms of usefulness, ease of use, intention to use and behavioral intention had been met. According to the findings, ESL students who participated in the survey had a high level of technology acceptance and readiness in e-Learning potential to improve their education. Students were able to access a wealth of resources, experiment with new English-based activities, and interact with their peers and instructors in the language classroom.

Some ripple effects of this research have been identified. The traditional method of instruction is complemented by the incorporation of e-Learning, which benefits both instructors and ESL students. Many e-Learning-related applications have the potential to pique students' interest and help them retain and apply what they've learned. In addition, the positive views of ESL students have implications for curriculum designers and teachers in that they highlight the need to rethink and redesign the learning materials to incorporate e-Learning opportunities for ESL students to explore. With the help of e-Learning, students will be able to take part in educational activities whenever and wherever they may be. Therefore, educators should think about how to implement the suggestion to make education simpler and more engaging for students.

This study adds to the body of knowledge based on e-Learning technology acceptance and readiness by expanding on the findings of earlier empirical and theoretical studies. Therefore, it has the following restrictions: first, the sample size is small, and the sample population is restricted to students in a single course at a single institution of higher education (polytechnics), so the results may not be generalizable.

REFERENCES

1. Abdullah, S. A., Saud, M. S., & Kamin, Y. (2019). M-learning for technical and vocational education training (TVET). *International Journal of Recent Technology and Engineering*, 8(3), 7236-7239.

2. Ahmad Alif Kamal, Norhunaini Mohd Shaipullah, Liyana Truna, Muna Sabri & Syahrul N. Junaini (2020). Transitioning to Online Learning during COVID-19 Pandemic: Case Study of a Pre-University Centre in Malaysia. *International Journal of Advanced Computer Science and Applications_ 11 (6)*.
3. Alhumaid, K., Habes, M., & Salloum, S. (2021). Examining The Factors Influencing The Mobile Learning Usage During COVID-19 Pandemic: An Integrated SEM-ANN Method. *IEEE Access, 9, 102567-102578*. DOI:10.1109/ACCESS.2021.3097753
4. Al-adwan, Al-Madadha, A & Zvirzdinaite, Z.(2018).Modeling Students' readiness to adopt Mobile Learning in Higher education: An Empirical Study. *International Review of Research in Open and Distributed Learning*.Athabasca University Press. URL: <https://id.erudit.org/iderudit/1050884ar>.
5. Al-Rahmi, A. M., Al-Rahmi, W. M., Alturki, U., Aldraiweesh, A., Almutairy, S., & Al-Adwan, A. S. (2021). Exploring the factors affecting mobile learning for sustainability in higher education. *Sustainability, 13(14)*, 7893.
6. Alshurideh, M., Salloum, S. A., Al Kurdi, B., Monem, A. A., & Shaalan, K. (2019). Understanding the quality determinants that influence the intention to use the mobile learning platforms: A practical study. *International Journal of Interactive Mobile Technologies, 13(11)*.
7. Al-Siyabi, M. A., & Yota, D. (2020). Opportunities and Challenges of Mobile Learning Implementation in Schools in Oman. *International Journal of Mobile and Blended Learning, 12(3)*, 32-48. DOI:10.4018/IJMBL.2020070103
8. Alturki, U., & Aldraiweesh, A. (2022). Students' perceptions of the actual use of mobile learning during COVID-19 pandemic in higher education. *Sustainability, 14(3)*, 1125.
9. Asher Irfan Saroia & Shang Gao (2019). Investigating University Students' Intention To Use bile Learning Management Systems In Sweden. *Innovations in Education and Teaching International, 56:5*, 569-580, DOI: 10.1080/14703297.2018.1557068
10. Aziz, F., Md Rami, A., Razali, F., & Mahadi, N. (2020). The influence of leadership style towards technology acceptance in organization. *International Journal of Advanced Science and Technology, 29(7)*, 218-225.
11. Azli, W.U.A., Mohd Shah, P& Mohammed, M. (2018). Perception on the Usage of Mobile Assisted Language Learning (MALL) in English as a Second Language (ESL) Learning among Vocational College Students. *Creative Education*. DOI:10.4236/ce.2018.91008
12. Burac, M.A.P.; Fernandez, J.M.; Cruz, M.M.A.; Cruz, J.D. (2019).Assessing the impact of e-learning system of higher education institution's instructors and students. *IOP Conf. Ser. Mater. Sci. Eng.* 482, 1–8. [Google Scholar] [CrossRef]
13. Çaldağ, M. T., Gökalp, E., & Alkış, N. (2021). ICT-Based distance higher education: A necessity during the era of COVID-19 outbreak. *Emerging Technologies During the Era of COVID-19 Pandemic*, 365-385.
14. Camilleri, M.A. & Camilleri, A.C. (2020), The students' readiness to engage with mobile learning apps. *Interactive Technology and Smart Education, Vol. 17 No. 1, pp. 28-38*. <https://doi.org/10.1108/ITSE-06-2019-0027>
15. Chen, L., & Aklikokou, A. K. (2020). Determinants of E-government adoption: testing the mediating effects of perceived usefulness and perceived ease of use. *International Journal of Public Administration, 43(10)*, 850-865.
16. Ching-Hsuan Yeh, Yi-Shun Wang, Yu-Shun Wang, Yu-Min Wang & Tung-jun Liao (2021), Drivers of mobile learning app usage: an integrated perspective of personality, readiness, and motivation. *Interactive Learning Environments*. 1-18. DOI: [10.1080/10494820.2021.1937658](https://doi.org/10.1080/10494820.2021.1937658).
17. Chirchir, L. K., Aruasa, W. K., & Chebon, S. K. (2019). Perceived usefulness and ease of use as mediators of the effect of health information systems on user performance.
18. Chung, E., Geetha Subramaniam, & Laura Christ Dass. (2020). Online Learning Readiness Among University Students. *Asian Journal of University Education, 16*, 46-58. DOI:<https://doi.org/10.24191/ajue.v16i2.10294>

19. Denan, Z., Munir, Z. A., Razak, R. A., Kamaruddin, K., & Sundram, V. P. K. (2020). Adoption of technology on E-learning effectiveness. *Bulletin of Electrical Engineering and Informatics*, 9(3), 1121-1126.
20. Fabian, S. R., Gan Poh Xian, & Md Yunus, M. (2021, September). All Set? ESL Online Teacher elements of the mobile learning application applied in this study among Polytechnic Lecturers during the Covid-19 Pandemic. *International Journal of Advanced Research in Education and Society*, 3(3), 1-15.
21. Retrieved from <https://myjms.mohe.gov.my/index.php/ijares/article/view/15066>
22. Han, J. H., & Sa, H. J. (2022). Acceptance of and satisfaction with online educational classes through the technology acceptance model (TAM): The COVID-19 situation in Korea. *Asia Pacific Education Review*, 23(3), 403-415.
23. Hashim, H. & Md. Yunus, M. (2018). Learning Through Mobile: Exploring The Views Of Polytechnic ESL Learners. *Journal of Teaching & Learning English in Multicultural Contexts*, 2(1).
24. Hasnan, M., & Mohin, M. (2021). Implementation Of LMS-CIDOS In Polytechnic English Language Classroom: Issues And Challenges. *Asian Journal of University Education*. 17, 527-537. DOI:<https://doi.org/10.24191/ajue.v17i4.16253>.
25. Isa, N. A. B. M. (2020). Continuance Intention Of Learning Management-System (Lms) Among Lecturers In Northern Polytechnic, Malaysia.
26. Khatoon, B., & Hill, K. W. (2019). Mobile learning in dentistry: challenges and opportunities. *British Dental Journal*, 227, 298-304. DOI:<https://doi.org/10.1038/s41415-019-0615-x>
27. Klimova, B., & Polakova, P. (2020). Students' perceptions of an EFL Vocabulary Learning Mobile Application. *Education Sciences*, 10(2), 37. DOI:<https://doi.org/10.3390/educsci10020037>
28. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*. 30(3), 607-610. doi:10.1177/001316447003000308
29. Kurniasih, A., Santoso, A. K., Riana, D., Kadafi, A. R., Dari, W., & Husin, A. I. (2020). TAM method and acceptance of COVID-19 website users in Indonesia. In *Journal of Physics: Conference Series* (Vol. 1641, No. 1, p. 012020). IOP Publishing.
30. Lanlan, Z., Ahmi, A., & Popoola, O. M. J. (2019). Perceived ease of use, perceived usefulness and the usage of computerized accounting systems: A performance of micro and small enterprises (mses) in china. *International Journal of Recent Technology and Engineering*, 8(2), 324-331.
31. Makmor, N., Aziz Abd, N., & Alam Shah, S. (2019). Social commerce an extended technology acceptance model: The mediating effect of perceived ease of use and perceived usefulness. *Malays. J. Consum. Fam. Econ*, 22, 119-136.
32. Malik, A. N. A., & Annuar, S. N. S. (2021). The effect of perceived usefulness, perceived ease of use, reward, and perceived risk toward e-wallet usage intention. In *Eurasian Business and Economics Perspectives: Proceedings of the 30th Eurasia Business and Economics Society Conference* (pp. 115-130). Springer International Publishing.
33. Moorthy, K., Tzu Yee, T., Chun T'ing, L., & Vija Kumaran, V. (2019). Habit and hedonic motivation are the strongest influences on mobile learning behaviors among higher education students in Malaysia. *Australasian Journal of Educational Technology*, 35(4). <https://doi.org/10.14742/ajet.4432>
34. Odit-Dookhan, K.(2020). Attitude towards e-learning: The case of mauritian students in public teis. *PEOPLE Int. J. Soc. Sci.* 2018, 4, 628–643. [Google Scholar] [CrossRef]
35. Ozer, O., & Kılıç, F. (2018). The Effect of Mobile-Assisted Language Learning Environment on EFL Students' Academic Achievement, Cognitive Load and Acceptance of Mobile Learning Tools. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(7), 2915-2928. <https://doi.org/10.29333/ejmste/90992>
36. Ozsari, G., & Saykili, A.(2020). Mobile Learning in Turkey: Trends, Potentials and Challenges. *Journal of Educational Technology and Online Learning*, 3(1), 108-132. DOI:[10.31681/jetol.670066](https://doi.org/10.31681/jetol.670066)
37. Padmanathan, Y., & Jogulu, L. (2018). Mobile Learning Readiness Among Malaysians. *Journal of Information System and Technology Management*, 3(8), 113-125.
38. Panergayo, A. A. (2021). Students' Behavioral Intention to Use Learning Management System: The Mediating Role of Perceived Usefulness and Ease of Use.

39. Pebriantika, L., Paristiowati, M., & Mochtar, H. (2019). Students' Perceptions of Mobile Technology in Higher Education: Preparation to Design. *Universal Journal of Educational Research*, 180-185. DOI:[10.13189/ujer.2019.071621](https://doi.org/10.13189/ujer.2019.071621)
40. Qashou, A. (2021). Influencing factors in M-learning adoption in higher education. *Education and information technologies*, 26(2), 1755-1785.
41. Qazi, A., Qazi, J., Naseer, K., Zeeshan, M., Qazi, S., Abayomi-Alli, O., ... & Haruna, K. (2021). Adaption of distance learning to continue the academic year amid COVID-19 lockdown. *Children and Youth Services Review*, 126, 106038.
42. Safie, A. b., Wahid, S., & Idris, N. (2017). Evaluating Student Perception Towards Application. *National Innovation and Invention Competition Through Exhibition*.
43. Saroia, A. I., & Gao, S. (2019). Investigating university students' intention to use mobile learning management systems in Sweden. *Innovations in Education and Teaching International*, 56(5), 569-580.
44. Sean B Eorn. (2021). The Use of Mobile Devices in University Distance Learning: Do They Motivate the Students and Affect the Learning Proces?. *International Journal of Mobile and Blended Learning (IJMBL)*, 13(4), 20. DOI: [10.4018/IJMBL.2021100101](https://doi.org/10.4018/IJMBL.2021100101)
45. Setiyani, L., Effendy, F., & Slamet, A. A. (2021). Using Technology Acceptance Model 3 (TAM 3) at selected private technical high school: google drive storage in e-learning. *Utamax: Journal of Ultimate Research and Trends in Education*, 3(2), 80-89.
46. Shao, C. (2020). An empirical study on the identification of driving factors of satisfaction with online learning based on TAM. In *5th international conference on economics, management, law and education (EMLE 2019)* (pp. 1067-1073). Atlantis Press.
47. Sheppard, M., Vibert, C. (2019). Re-examining the relationship between ease of use and usefulness for the net generation. *Educ Inf Technol* 24, 3205–3218. DOI:<https://doi.org/10.1007/s10639-019-09916-0>
48. Shida, N., Osman, S., & Abdullah, A. H. (2018). Students' Perceptions of the Use of Asynchronous Discussion. *International Journal of Engineering & Technology*, 201-204. Retrieved from www.sciencepubco.com/index.php/IJET
49. Sonmez et al. (2018). A Review of Current Studies of Mobile Learning. *Journal of Educational Technology & Online Learning*, 1(1). Retrieved from <http://dergipark.gov.tr/jetol>
50. Sun, Y., & Gao, F. (2020). An investigation of the influence of intrinsic motivation on students' intention to use mobile devices in language learning. *Educational Technology Research and Development*, 68, 1181-1198.
51. Stal, J., & Paliwoda-Pękosz, G. (2019). Mobile technology acceptance model: an empirical study on users' acceptance and usage of mobile technology for knowledge providing. In *Information Systems: 15th European, Mediterranean, and Middle Eastern Conference, EMCIS 2018, Limassol, Cyprus, October 4-5, 2018, Proceedings 15* (pp. 547-559). Springer International Publishing.
52. Syahrudin, S., Yaakob, M. F. M., Rasyad, A., Widodo, A. W., Sukendro, S., Suwardi, S., ... & Syam, A. (2021). Students' acceptance to distance learning during Covid-19: the role of geographical areas among Indonesian sports science students. *Heliyon*, 7(9), e08043.
53. Tahar, A., Riyadh, H. A., Sofyani, H., & Purnomo, W. E. (2020). Perceived ease of use, perceived usefulness, perceived security and intention to use e-filing: The role of technology readiness. *The Journal of Asian Finance, Economics and Business*, 7(9), 537-547.
54. Temitayo Deborah Oyedotun (2020). Sudden change of pedagogy in education driven by COVID-19: Perspectives and evaluation from a developing country. *Research in Globalization. Volume 2, ISSN 2590-051X*,
55. Ustun, A. B. (2019). Effects of Mobile Learning in Blended Learning Environments . *Bilgi ve İletişim Teknolojileri Dergisi* , 1 (1) , 1-14 .
56. Retrieved from <https://dergipark.org.tr/en/pub/bited/issue/50545/625452>
57. Wardana, A. A., Saputro, E. P., Wahyuddin, M., & Abas, N. I. (2022, June). The effect of convenience, perceived ease of use, and perceived usefulness on intention to use e-wallet. In *International Conference on Economics and Business Studies (ICOEBS 2022)* (pp. 386-395). Atlantis Press.

58. Wicaksono, A., & Maharani, A. (2020). The effect of perceived usefulness and perceived ease of use on the technology acceptance model to use online travel agency. *Journal of Business and Management Review*, 1(5), 313-328.
59. Widodo, S. F. A., Wibowo, Y. E., & Wagiran, W. (2020, December). Online learning readiness during the Covid-19 pandemic. In *Journal of Physics: Conference Series* (Vol. 1700, No. 1, p. 012033). IOP Publishing.
60. Ying, Y. H., Mohamad, M., & Nasir, M. K. M. (2022). Students' Acceptance of Using CIDOS 3.5 for Learning Communicative English During Covid-19 Pandemic. *Journal of Language Teaching and Research*, 13(5), 956-964.
61. Alwi, A., Nordin, M.N.B. (2022). Applying Information Technology-Based Knowledge Management (KM) Simulation in the Airline Industry. *International Journal of Mechanical Engineering*, 2022, 7(1), pp. 1249–1252
62. Bin Nordin, M.N., Rajoo, M., Maidin, S.S., Sulaiman, M.S.S., Mosbiran, N.F. (2022). Competencies on Implementations of 21st Century Technology on Teaching, Learning and Assessment. *Res Militaris*, 2022, 12(2), pp. 7320–7331
63. Bin Shafie, A.S., Binti Rubani, S.N.K., Nordin, M.N., Ibrahim, E., Talip, S. (2022). Micro-Pits Effectiveness for Controlling Friction in Planestrain Extrusion. *International Journal of Mechanical Engineering*, 2022, 7(1), pp. 1270–1280
64. Desa, M.B.M., Nasir, N.B.C.M., Jasni, M.A.B., Yusof, Y.B., Nordin, M.N. (2022). ISIS Uses A Social Influence Techniques To Induce Individuals To Become Terrorist Sympathizers: A Review. *Journal of Pharmaceutical Negative Results*, 2022, 13, pp. 5622–5630.
65. Hamid Ali, F. A. B. ., M. Sukri, M. K. A. ., M. Yusof, M. A. ., Jali, M. Z. ., Nordin, M. N. ., & Surip, M. . (2023). An Initial Study of Cyber Security for Web Services in Malaysian Organizations. *International Journal of Intelligent Systems and Applications in Engineering*, 11(6s), 180–184.
66. Jaya, S., Zaharudin, R., Hashim, S.N.A., Mapjabil, J., Nordin, M.N. (2021). Employing Design and Development Research (DDR) Approach in Designing Next Generation Learning Spaces (NGLS) In Teachers' Pedagogy and Technology Tools. *Review of International Geographical Education Online*, 2021, 11(7), pp. 1237–1246
67. Kadir, M.A.B.A., Muhammad, A.B., Yusoff, M.Z.B.M., Hassan, M.H., Nordin, M.N. The Relationship Between Learning Style And Jawi Writing Skills Among Primary School Student. *Journal of Pharmaceutical Negative Results*, 2022, 13, pp. 5524–5534.
68. M. N. Nordin, M. Z. Mustafa and N. F. Mosbiran (2023). The Application of Artificial Intelligence in Android Mobile Learning for the Special Education Students. 2023 International Conference on Artificial Intelligence and Smart Communication (AISC), Greater Noida, India, 2023, pp. 806-811.
69. Magiman, Mohamad Maulana; Nordin, Mohd Norazmi (2021). A Study of Ritual Communication In Kadayan Community In Sarawak. *Journal for the Study of Religions and Ideologies*, Vol. 20, Iss. 60, (Winter 2021): 211-224.
70. Mizan, M.Z., Lada, S., Hamzah, A.A., Esam, A., Nordin, M.N. (2021). Movement Control Order (MCO): An Syar'iyah Political Approach. *Review of International Geographical Education Online*, 2021, 11(7), pp. 1225–1230
71. Mohd Norazmi Nordin, Madzlan Abet, Doris Maying, Tang Hung Moi, Mohd Saleh Abbas. (2023). Blind Special Education Students Learning: Preparing Future Teachers Psychology. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 21–30.
72. Mohd Norazmi Nordin, Mohamad Zaid Mustafa, Nor Fauziyana Mosbiran, Mohd Saufi Mohd Ramli, Siti Sarah Maidin. (2023). Planning Psychology and Rehabilitation Elements in Curriculum for Special Need Student. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 39–51.
73. Mohd Norazmi Nordin, Mohd Kamal Mohd Shah, Siti Sarah Maidin, Yus Heary Mahmud, Siti Saidatul Azween Ismail. (2023). Outcomes-based Approach in Engineering Education for Special Education Need Students: Psychology and Rehabilitation Elements. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 52–58.

74. Mohd Norazmi Nordin, Siti Mastura Baharudin, Farah Azaliney Mohd Amin, Siti Hajar Maizan, Ainul Huda Jamil. (2023). Blind Special Education Students' Mathematics Psychology in the Pandemic: The Impact of Flipped Classroom Learning. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 31–38.
75. Mohd Norazmi Nordin, Siti Mastura Baharudin, Siti Sarah Maidin, Muhd Zulkifli Ismail, Asrizam Esam. (2023). Psychology and Rehabilitation Awareness through Computer Science Education for Special Education Students. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 01–09.
76. Mohd Norazmi Nordin, Siti Noor Aneeis Hashim, Mohd Saleh Abbas, Siti Sarah Maidin, Masrina Nadia Mohd Salleh. (2023). Curriculum Redesign in the Computer Science to Enhance the Psychology and Rehabilitation Awareness of the Blind Special Education Student. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 10–20.
77. Mosbiran, N, F, B, M.; Mustafa, M, Z, B.; and Nordin, M, N, B. (2021). Special Elements and Values Needed in Leadership for Special Education. *Review of International Geographical Education (RIGEO)*, 11(4), 712-722. doi: 10.33403/rigeo. 8006784
78. Mosbiran, N.F., Mustafa, M.Z., Nordin, M.N., Abenoh, N.A., Saimy, I.S. (2021). Analysis of the Study of Individual Education Plans in Special Education. *Review of International Geographical Education Online*, 2021, 11(7), pp. 1231–1236
79. Norazmi, N., Zaid, M. & Abdul Rasid, A. R. (2019). The Practice of Headmasters' Leadership and Its Effect on Job Satisfaction of Special Education Integration Program (PPKI) Teachers in Johor, Malaysia. *Universal Journal of Educational Research* 7.9 (2019): 2008-2014. DOI: 10.13189/ujer.2019.070923.
80. Norazmi, N., Zaid, M. & Abdul Rasid, A. R. (2020). Relationship between Headmasters' Leadership, Task Load on Special Education Integration Programme Teachers' Job Satisfaction. *Universal Journal of Educational Research* 8(8):3398-3405
81. Nordin, M. N., Hamdan, I. F., Noor, F. M., Ali, S., Magiman, M. M., Yusof, N. M., & Tajuddin, N. I. I. (2023). The Implementations of Technology in Special Education Classrooms Based Project. *International Journal of Professional Business Review*, 8(5), e01444.
82. Nordin, M. N., Idris, N. H., Yusof, J., Wahab, N. A., Wahab, J. A., Ba'ai, N. M., & Ali, F. A. H. (2023). Special Education Classrooms: Can Technology Use Inspired?. *International Journal of Professional Business Review*, 8(5), e01445.
83. Nordin, M. N., Shafie, A. A. H., Khalid, N. F., Hanafi, N. H. M., & Baharudin, S. M. (2023). Best Theories Practice of Guidance and Counseling for Special Need Students in Special Education School. *International Journal of Professional Business Review*, 8(5), e01442.
84. Nordin, M.N., Alwi, A. (2022). Digital Video Broadcasting Implementation in WSN Environments. *International Journal of Mechanical Engineering*, 2022, 7(1), pp. 1256–1259
85. Nordin, M.N., Alwi, A. (2022). Knowledge Management Model Implementation in Electronic Devices. *International Journal of Mechanical Engineering*, 2022, 7(1), pp. 1253–1255
86. Nordin, M.N.B., Maidin, S.S., Rajoo, M., Magiman, M.M., Mosbiran, N.F. (2022). International Frameworks For 21st Century Competences: Comparative Education. *Res Militaris*, 2022, 12(2), pp. 7332–7344
87. Omar, S.A., Latif, M.S.A., Bujang, S., ...Musa, P.I.P., Nordin, M.N. (2022). Determination of Uruf Rate of Gold Jewelry In The State of Sarawak. *Journal of Pharmaceutical Negative Results*, 2022, 13, pp. 5607–5612.
88. Rani, M.A.M., Jasmi, Z.S., Abbas, M.S., Nordin, M.N., Musa, P.I.P. (2023). Empowering The Competitiveness Of Asnaf Rural Zakat Entrepreneurs Policy: National Development Aspirations 2030. *Journal of Pharmaceutical Negative Results*, 2022, 13, pp. 5613–5621.
89. Rani, M.A.M., Mohd Arif, M.I.A., Adenan, F., Nordin, M.N., Izham, S.S. (2022). Contemporary Research In Islamic Philanthropy: An Analysis of The Needs And Directions of The Field of Waqf. *Journal of Pharmaceutical Negative Results*, 2022, 13, pp. 5805–5813.
90. Rani, M.A.M., Nordin, M.N., Abbas, M.S., ...Ismail, M.Z., Hamzah, N.F. (2022). Inovative istibdal on development of endowed (Waqf) land a study on issues of acquisition of endowed land by the state authorities. *HIV Nursing*, 2022, 22(2), pp. 3872–3882

91. Rejab, S.N.M., Mansor, S.K., Rahim, S.I.A., ...Khalid, N.Z.M., Ismail, A.F.M.F. (2022). Can zakat realize the sustainable development goals (Sdgs)? *HIV Nursing*2022, 22(2), pp. 3833–3837.
92. Rosnee Ahad, Mohamad Zaid Mustafa, Suhaimi Mohamad, Nur Hanim Saadah Abdullah, Mohd Norazmi Nordin (2021). Work Attitude, Organizational Commitment and Emotional Intelligence of Malaysian Vocational College Teachers. *Journal of Technical Education and Training* Vol. 13 No. 1 (2021): 15-21.
93. S, S.M., Yusoff, M.Y.M., Rahmat, R., Yassin, Y.N.H.M., Nordin, M.N. (2021). Asset Tokenization: A Simulation Study. *Review of International Geographical Education Online*, 2021, 11(7), pp. 1219–1224
94. Siti Noor Aneeis Hashim, Haziah Sa'ari, Mazira Mohd Zain, Mohd Norazmi Nordin, Shaliza Alwi. (2023). Pre-service EFL Teachers' Psychology and Rehabilitation about SLA through WhatsApp in Blended Learning for Special Education. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 81–90.
95. Siti Noor Aneeis Hashim, Mohd Norazmi Nordin, Mohd Saleh Abbas, Muhamad Amin Ab Ghani, Dayana Hazwani Mohd Suadi Nata. (2023). English Language Instructional and Psychology Challenges for Special Education. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 117–123.
96. Siti Noor Aneeis Hashim, Mohd Norazmi Nordin, Noorsaiyidah Suradi, Widad Ma, Noraziah Ibrahim. (2023). English Language Instructor's Psychology of Special Education Educated in Inner-Circle Nations on Autonomy in Teaching Practice. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 102–116.
97. Siti Noor Aneeis Hashim, Vijayaletchumy Krishnan, Mohd Norazmi Nordin, Nor Aida Sapuan, Mohd Fairoz Affendy Md Nordin. (2023). Special Education Students' Cognitive and Psychology Discerment on Online Classroom Management in English Language Teaching Process. *Journal for ReAttach Therapy and Developmental Diversities*, 6(3s), 96–101.
98. Zaid, M., Norazmi, N. & Abdul Rasid, A. R. (2020). Regression between Headmaster Leadership, Task Load and Job Satisfaction of Special Education Integration Program Teacher. *Universal Journal of Educational Research* 8.4 (2020) 1356 - 1362. Doi: 10.13189/ujer.2020.080428.
99. Zaid, M., Norazmi, N. & Abdul Rasid, A. R. (2020). Structural Equation Modelling Using AMOS: Confirmatory Factor Analysis for Taskload of Special Education Integration Program Teachers. *Universal Journal of Educational Research*, Vol 8 (Jan, 2020) No 1: 127-133. DOI: 10.13189/ujer.2020.080115.