
E-Learning as a Tool for Teaching and Learning in Higher Education

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ABSTRACT

Newly, the E-Learning market has soared and is known as a new paradigm in modern education. E-Learning acts as a medium, consisting of several types of computers and electronic media that are communication tools as well as the Internet, which provide training and access to information on specific subjects. By using E-Learning students can take online classes anywhere, regardless of time and place. In general, E-Learning is more geared towards self-training and is suitable for individuals who work full time but want to further their studies. Therefore, this study has been developed and integrated with the factors that lead to the effectiveness of E-Learning as a tool in the Teaching and Learning (T&L) approach. A quantitative approach is applied using self-administered questionnaires targeted at higher education students. Therefore, the results of this research will help provide in-depth information to the current education system in Malaysia, especially in creating strategies to improve learning education for the country in general.

Keywords: E-Learning; teaching effectiveness; teaching and learning tools; higher education.

1. INTRODUCTION

E-Learning is well known among educators and students because it is a medium consisting of various types of computers and electronic media which is a communication tool including the internet that provides training and knowledge on specific subjects. By using E-Learning, students can take online classes anywhere, no matter the time and place. In general, E-Learning is more focused on self-training and is very suitable for individuals who work full time but want to further their studies [1]. E-Learning is now changing far more than the content and approach of E-Learning. Prior to E-Learning, there were other Web-based technologies (WBT), Open Distance Learning (ODL), Technology-Based Learning (TBL) and Open Learning [2]. In the era of information technology, E-Learning has become a popular term, and there are many interpretations about it. E-Learning also delivers information via the Internet to places other than the classroom where the headmaster teaches.

With this alternative, students can communicate with their lectures or other students in the classroom or outside the classroom [1]. [3] stated that E-Learning is a teaching and learning platform where students can receive teaching materials using the Internet and other network media. E-learning comprises all forms of electronically supported learning and teaching. The information and communication systems, whether networked or not, serve as specific media to implement the learning process [4,5]. E-Learning allows sophisticated learning processes to take place regardless of distance and number of members browsing. E-Learning becomes more productive with the continuation of traditional classes combined with online classes. Furthermore, E-Learning has become a potential learning platform that provides all-time access where students will be able to learn anytime and anywhere from any angle of the universe [6]. There are several benefits that can be obtained by

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anyone who uses E-Learning as a learning medium [2]. Among them is that students who use E-Learning in lessons will get information quickly instead of following traditional methods. In addition, E-Learning is much more effective without being tied to a tight schedule and it is also an unlimited method where there are many ways in which different course materials can be delivered to students with various electronic learning techniques. Moreover, E-Learning has a positive effect when used and used best by teachers and lecturers, and this also helps in the application of 21st century skills in the education system [3].

There is a problem that must be taken into account in this study, which is to identify the effectiveness of E-Learning tools in the Teaching and Learning (T&L) system among students in institutions of higher learning. The problem that arises is a clear and concise statement that describes the symptoms of a particular problem that the researcher wants to investigate. According to [7], changing learning styles provide some challenges in the cultural expectations and technological developments that are underway while [2] states that E-Learning requires electronic knowledge skills. Gamage et al. [8] used ten factors to analyze e-learning effectiveness and they ranked the top five which are interactivity, collaboration, motivation, network of opportunities and pedagogy [9].

This is because students will have difficulty in accessing any software. Lack of resources, institutional structures and financial support will also affect the use of E-Learning involving technological integration [10]. When there is problem in financial support, it is difficult for the institution to provide users with high accessibility. Indirectly, students will face challenges in accessing to a reliable computer and internet connection [11]. In line with the rapid development of technology, there are students and teachers who are unaware of the existence of E-Learning as a modern method of teaching and learning [12]. This indicates that there are still some people who do not know E-Learning in education.

In addition, student time is also a limited resource because time management can be handled effectively or vice versa. This is because students have different options, individuals manage their own time as they reach the college level. E-Learning is flexible because it can reduce the amount of class time and is easily accessible [2]. The respondents who have been involved in this research are mostly 18 to 32 years old, and the E-Learning study that has been done is to use the Jordan Higher Education system as the main reference [7]. This research focuses on tourism students aged between 19 and 25, and research where E-Learning has not been explored. Therefore, from the current E-Learning environment, this research will examine the impact of ICT skills, time management, learning resources and techniques on the effectiveness of E-Learning as one of the options in the teaching and learning system, especially among students at higher levels of institutions education.

2. LITERATURE REVIEW

E-Learning is one way to communicate and learn using technology [13]. It is also one of the emerging tools of information technology that has been integrated with many universities and other tertiary institutions, transitioning from traditional to the modern use of advanced technology. According to [14], education is a process that involves skills, acquiring knowledge, facilitating learning, values, beliefs, as well as habits. Numbers of methods have been established in education to enhance the process of instilling knowledge including discussion, storytelling, coaching, training, and direct research. Commonly, there are four factors that impact the effectiveness of E-Learning in the teaching and learning systems among students at higher levels of education. These factors have been discussed by previous studies, they are Information and Communication Technologies (ICT) skills, time management, resources and learning technique.

The first factor is ICT skills which have been used and expanded widely all over the world. Teaching and learning session are more interesting as ICT provides interactivity. Generally, ICT access in Malaysia is no longer a problem as Malaysia has many network providers, thus students can access the Internet. Besides that, students also do not have difficulties in accessing ICT because nowadays most of them have their laptops and personal computers. Even though students do not have their computer, they still can access at cybercafés as cybercafés are mushrooming everywhere in the country [15]. According to the previous researcher, providing students with ICT skills is an essential

goal in every school and institution across the country because by equipping them with the skills they may increase and enhance their ICT development in E-Learning. [16] stated that if E-Learning can improve the ICT skills among the students, it is crucial for universities to distinguish how they want to use their skills with their learning styles. ICT skills are necessary for students because they need to gain the benefits from E-Learning so that they can improve themselves in their studies and their learning styles. If students can adapt to E-Learning quickly, it shows that E-Learning has been implemented successfully in the university.

The next aspect that leads to the effectiveness of E-Learning is time management. As stated by [17], time management refers to planning the day to use time effectively, and this is most likely related to the industrial revolution. Time management among students refers to how they do things effectively. Proper time management among students will help them to be more productive, creative, to save money and avoid doing work in vain, and to increase their chances to enhance academic performance. According to the previous researcher, proper time management is crucial in tackling the stress of modern life without feeling too much pressure in traditional way of life. Using E-Learning, both teachers and students have a flexible time and place to do their work [2]. Educators and students have the availability of choice to choose the place and time that suit them in order to deliver their work. Besides, online education also allows self-pacing. This is because students have their own time to manage their study, to adapt whether to go slowly or at a quick speed based on their own understanding. E-Learning also enables students to have more interaction with their teachers as they have their own time to contact their educators. This will help to eliminate barriers of students who are hindered in the participation of online education.

The third factor that leads to the effectiveness of E-Learning is resources. E-Learning is an online tool that is used for the virtual learning environment to help and make more comfortable the delivery of educational content for educational institutions [17]. [18] stated that online tools comprise a variety of educational technological terms that uses electronics or teaching and learning systems. On the other hand, Wi-Fi connection remains significant for Internet users for it provides higher bandwidth and promotes energy saving consumption [19]. Hence, the advancement of ICT in multimedia resource-based has elevated the interest in the use of E-Learning for teaching and learning particularly among students of higher educational levels. However, the insufficiency of technological infrastructure could create distraction for teachers, students and their own learning experience [20]. E-Learning plays notable roles to transfer, teach or program through electronic devices such as the computers, mobile phones, i-pads, tablets and more.

Nonetheless, institutions that implement E-Learning will enlarge and enhance the combination of technology and facilities that they offer on-campus [21].

There are about 54% of adults in 21 developing countries who are using the internet. In 2014, the percentage of adults who uses a smartphone was already 21% and will rise to 37% in the future. There are about 68% of users who already use the smartphone and 87% is the internet user in developed countries [21]. Last but not the least, the fourth factor that leads to the effectiveness of E-Learning is learning the technique. Learning is best as a process, not in terms of yield. To increase the learning in higher education, the main focus is the engagement of students so that they can enhance their learning styles – a process that includes a review or feedback on the effectiveness of their learning efforts [22,23]. Traditional learning styles have been the dominant teaching process in higher education for more than a decade. Furthermore, the revolution of computer-based learning in university has become an excellent icon for higher education in the 21st century [24]. Changing the learning style presents some challenges comprising changes in the cultural expectations and the technological advances of staff and students [7]. Learning technique is applied in a different spectrum, such as distributed learning, hybrid learning and online active learning. Through the E-Learning platform, numbers of techniques are employed such as virtual classrooms, internet-mediated teaching, web-based learning and videoconferences [7]. Students can adapt to the learning techniques of their educators. It is important to evaluate students' learning styles to evaluate their E-Learning performance to determine whether E-Learning is appropriate for teaching [25].

3. CONCEPTUAL FRAMEWORK

This study has expanded the research framework (Fig. 1) through the number of readings from previous works and literature. Therefore, the focus of this research is to find out the factors that influence the use of E-Learning tools in teaching and learning in higher education. Based on previous studies, it can be concluded that the independent variables are tertiary education, learning techniques, ICT skills among students and time management. In this study, the researcher chose all these independent variables because the variables are the main factor of the dependent variables.

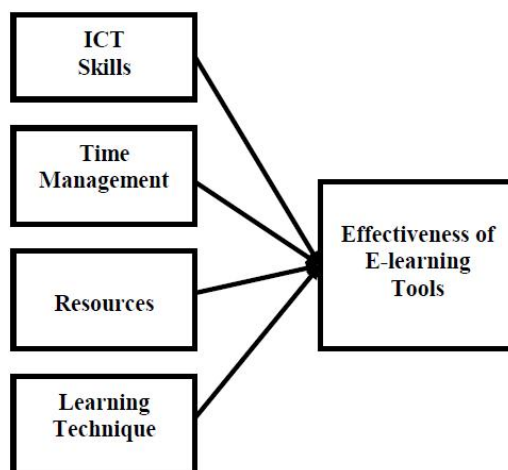


Fig. 1. A conceptual framework on the influence of E-Learning tools on teaching and learning systems

Based on reading and understanding from previous research and literature, the hypothesis has been formulated to answer the research questions:

- H1:** ICT influence the effectiveness of E-Learning tools in the teaching and learning system among students at higher education.
- H2:** Time management influence the effectiveness of E-Learning tools in the teaching and learning system among students at higher education.
- H3:** Resources influence the effectiveness of E-Learning tools in the teaching and learning system among students at higher education.
- H4:** Learning technique influences the effectiveness of E-Learning tools in the teaching and learning system among students at higher education.

4. RESEARCH METHODOLOGY

This study emphasises on analysing the effectiveness of E-Learning that has influenced teaching and learning factors among students of tourism in higher education. In this study, the quantitative approach has been used as this approach is more focused on numerical data collected through a large-scale survey. Thus, the data collection process involves population of students in institutions of higher education from year one to year three that includes various races. Meanwhile, the sample sizes of this research were approximately 194 students- from year one to year three, using simple random sampling technique where data was generated from a self-administered questionnaire distribution approach. Three parts of the questionnaire were developed for the data collection. Part A contains students' demographic profile, while part B contains questions related to independent variables. Part C covers items on dependent variables. This study used a five-point Likert scale on the items to obtain further information, it range from 1 = strongly disagree to 5 = strongly agree. All of the data from this study were analysed using Smart-PLS Version 3. Moreover, this study had performed a reliability and validity tests prior to the actual data collection process. To increase reliability,

Cronbach's alpha coefficient was tested. According to [26], the greater value of Cronbach's alpha means the item is more reliable.

Reliability values of less than 0.6 are considered weak, 0.6 to <0.7 are moderate, 0.7 to <0.8 are good, 0.8 to <0.9 are excellent and 0.9 are excellent [27]. Concerning the content of validity, academic experts from public universities were contacted to examine content validity.

Table 1. Procedure of data collection

Target Population	Higher Education Student
Number of Respondents	194 Higher Education Student
Types of Sampling	Random Sampling
Research Approach	Quantitative
Data Collection Method	Self-Administered
Data Analysis	Partial Least Square version 3

5. RESULTS AND DISCUSSION

5.1 Demographic Profile

The demographics of the respondents are shown in Table 2. About 127 respondents were female (65.5%), and 67 were male (34.5%). Pertaining to race, a large number of the respondents were Malay (74.7%), about 11.4% were Chinese, and the lowest number of respondents was other ethnicity (3.1%).

Almost half of the respondents were undergraduates (89.7%), followed by diploma holders (5.7%). The smaller percentage of respondents was another educational background representing 4.9%. The majority of respondents were single (97.4%), followed by the married respondent representing 2.6%.

Table 2. Demographics of student (n = 194)

Construct	Category	Frequency	Percentage (%)
Gender	Male	67	34.4
	Female	127	65.5
Race	Malay	145	74.4
	Chinese	22	11.3
	India	21	10.8
	Others	6	3.1
	Diploma	11	5.7
Education	Undergraduate	174	89.7
	Others	9	4.6
	Single	189	97.4
Status	Married	5	2.6

5.2 Path Analysis and Hypotheses Testing

Table 3 presents the β coefficients of relationships that stand among variables of the model. The researcher used the PLS technique and demonstrated that the hypothesis H1, H2, H3 and H4 would be accepted. ICT skills, time management; resources and learning techniques are as *independent variable* and Effectiveness of E-Learning is as dependent variables. As shown in Table 3, ICT Skills has a significant effect on the effectiveness of e-learning tools in teaching and learning ($\beta = 0.662$, $p < 0.05$), the P-values is less than 0.05. As a result, hypothesis 1 was accepted. Moreover, the results indicated that the total effects for time management (H2: $\beta = 0.765$, $p < 0.05$), resources (H3: $\beta = 0.736$, $p < 0.05$) and learning techniques (H4: $\beta = 0.646$, $p < 0.05$) were also significant towards effectiveness of e-learning tools in teaching and learning. As a result of the structural relationship and the path significance, the value of β and its significant level, the p-values are stated in Table 3.

Table 3. Results of hypothesis testing

Hypothesis	Relationship	Beta Value (β)	Significant Level	Decision
H1	ICTS=>EE	0.662	**	Supported
H2	TM=>EE	0.765	**	Supported
H3	RES=>EE	0.736	**	Supported
H4	LT=>EE	0.646	**	Supported

*Note: Significant level =** $p \leq 0.05$; ICTS= ICT Skills; TM= Time Management; RES=Resources; LT= Learning Techniques; EE= Effectiveness of E-Learning*

6. CONCLUSION

In the new era of learning, technology plays a fundamental role in the processes of teaching particularly for students at higher education. Today's learners want relevant, mobile, self-paced and personalised content. This need is fulfilled with the online mode of learning where students can learn at their own comfort and requirement. With the advancement of modern technology, the benefits of interactive learning tools are not only available for in-class sessions but can also be delivered over the internet. Tools like desktop sharing software can be used to achieve the same effective web-conferencing session as a single player. Hence, hundreds of digital education tools have been created with the purpose of giving autonomy to the student, improving the administration of academic processes, encouraging collaboration and facilitating communication between teachers and learners.

This research could benefit many in the future, and the effort should be prolonged by replicating the study and suggested in future research where they can be carried out by focusing on the same study model through different settings, such as highlighting higher education in one country and not the whole country. Furthermore, the study would be more interesting if the study has been conducted through a different approach of data collection method by applying a qualitative method. This could enable the researcher to gain more information or input through the qualitative method, as the response from respondents will vary from each other. Evidently, the entire hypothesis of this study has been supported and four factors that lead to the effectiveness of E-Learning usage in teaching and learning system among students have been identified. Based on the model, the methods that are used in this study can evaluate the effectiveness of E-Learning usage among students of higher education.

The present study has gone some way towards enhancing our understanding in utilising E-Learning as a tool in teaching and learning approach, particularly in the higher education system. Thus, it is believed that this study might help the institutions to improve their approach in teaching and learning as it will help the students to access e-learning more easily in the future. The students preferred to have online learning when higher institutions provide excellent facilities for them. E-Learning has completely changed the way learning is delivered to students. Unlike traditional chalkboard and chalkboard methods, E-Learning makes learning easier, more comfortable, and more effective.

Thus, this study has achieved the objectives and discovered new findings on the effects of ICT skills-time management, resources and learning techniques, on the effectiveness of e-learning tools in teaching and learning approach, among higher education students. It is hoped that the findings will supply wealthy and prominent information to the Malaysian education system, particularly to plan appropriate strategies for improving education for the country.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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