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A STUDY OF BEHAVIORAL INTENTION OF UNDERGRADUATES TOWARDS THE USAGE OF E-LEARNING SYSTEMS

Gweneth Kok Yi Wen[1], Eunice Chong Jia Ern[2], Khoo Xin Qi[3], Cynthia Sim[4], Yap Jia Jun[5] & Teh Su Yen[6*]

[1] Faculty of Arts and Social Science, Universiti Tunku Abdul Rahman, Malaysia
Email: gwenethgwen@gmail.com
[2] Faculty of Arts and Social Science, Universiti Tunku Abdul Rahman, Malaysia
Email: eunicechong1998@gmail.com
[3] Faculty of Arts and Social Science, Universiti Tunku Abdul Rahman, Malaysia
Email: xiiaomii627@gmail.com
[4] Faculty of Arts and Social Science, Universiti Tunku Abdul Rahman, Malaysia
Email: Cynthiasim98@gmail.com
[5] Faculty of Arts and Social Science, Universiti Tunku Abdul Rahman, Malaysia
Email: vincentyap35@gmail.com
[6] Faculty of Arts and Social Science, Universiti Tunku Abdul Rahman, Malaysia
Email: tehsy@utar.edu.my
[*] Corresponding Author
[1-5] Graduated Students

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Abstract:

The quick and wide usage of e-learning in Malaysia was pushed by the spread of the Covid-19 pandemic and the Movement Control Order (MCO). The e-learning systems were put in place to ensure students of all education levels would not face any disruptions in their studies. This indicated a significant shift in teaching and learning in Malaysia, from primary to tertiary education. Therefore, this research investigates the behavioural intention of 381 undergraduates in using the e-learning systems subscribed by the university. By using the UTAUT Model as the theoretical framework, the research findings indicated significant relationships between Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Social Influence (SI), Internet Connectivity (IC), Technical Support (TS) and Behavioural Intention (BI) of the respondents in using e-learning systems. The results benefit the university and education industry and enable them to chart how teaching and learning can be executed as the country moves forward to the endemic phase.

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Keywords:

Undergraduates, E-Learning System, And Behavioral Intention

Introduction

Al-Rahmi et al. (2015) defined e-learning as a process of obtaining knowledge via a grid of computers. At the same time, Hubackova (2015) stated that Computer-Based Training (CBT), the first form of electronic education, existed in the late eighties and the nineties of the last centenary. As technology advanced in the early nineties, browsers were developed to enable users to enhance the text with visuals. Later, the World Wide Web (www) was born and widespread. New programs were created to allow educators and learners to communicate (Hubackova, 2015). Now, more and more programs are being introduced to increase the effectiveness of e-learning and ease its use for educators and learners.

Currently, the function of e-learning is broadened to incorporate all students, whether they are distance learners or full-time university students. E-learning is not new in Malaysia. Such a system was introduced in the late nineties by universities in the country (Azhari & Ming, 2015). Many tertiary education institutions in Malaysia are now employing e-learning as a teaching method due to its workability as a substitute approach to physical teaching and learning (Ahmad & Chua, 2015). However, Hussin's (2004) study found that most tertiary education institutions do not have concrete and strategic plans for using modern information technology in their teaching and learning. This implies that using e-learning systems is still novel to many tertiary education institutions.

For the past two years, the worldwide spread of COVID-19 has contributed to the increase of e-learning in the country and the rest of the world. Online learning has become essential where it is no longer an alternative. Students are provided with opportunities for life-long learning, which requires digital literacy readiness to utilise the online learning systems. The Blueprint for Malaysia Higher Education 2015-2025 also emphasises the priorities of digital literacy, critical thinking and problem solving as the skills that will aid students to flourish in the era of the Fourth Industrial Revolution (*Malaysia education blueprint 2015-2025 (Higher Education), 2015).*

The new normal resulting from the pandemic has catalysed the rise of e-learning in Malaysia, which urges using web-based technology in higher education. However, establishing an efficient e-learning environment requires stakeholders' ongoing and cooperative exertion, from learners and education institutions to the government (Azhari & Ming, 2015).

Research Problem

The readiness level to adopt the blended learning system of Malaysian undergraduates and postgraduates is only at a moderate level. (Adams et al., 2018). Although Malaysian students have sufficient Information Technology (IT) knowledge and skills, improvements in their attitudes, technology availability, computer and internet efficacy, and technology usage are still required. Firstly, e-learning system quality is significant in determining the students' behavioural intention to adopt online learning systems. The system quality of e-learning is

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evaluated on its perceived usefulness, ease of use, security, and accuracy (Salloum et al., 2019; Pham et al., 2019).

A user-friendly e-learning system will also enable students to search for information easily and quickly access any websites they want. A high-quality e-learning system can provide users with error-free information and safeguards students' private data. Hence, students' readiness for technology and interest in the study is directly related to their satisfaction with the e-learning systems (Pham et al., 2019). Without a sound e-learning system, students will experience difficulties learning online, leading to negative perceptions of e-learning systems.

According to Sulaiman (2014), Internet facilities should function adequately to smoothly carry out online learning activities. However, many Malaysian students are still experiencing poor Internet connection problems, and some might not even have Internet coverage in their residential areas. A stable Internet connection and the availability of equipment to access online learning are vital to enhancing the students' behavioural intention in employing the e-learning systems. Without the Internet and computer facilities, students might not be able to participate in online classes. They also might not receive complete information from the lecturers due to frequent Internet connection problems.

Lastly, technical support also significantly affects the students' behavioural intention in using e-learning systems. When students utilise the e-learning systems, they occasionally experience technical problems such as logging into their accounts, trouble joining the online classes, losing the data of their accounts, et cetera. According to Frith and Kee (2003), a study shows that faculty members require reliable infrastructure and technical support to prevent the loss of their students. Students will feel discouraged from learning online if they encounter technical problems frequently without being provided with a proper solution from the university.

The wide adoption of the usage of e-learning systems is still relatively new. It is crucial to comprehend the behavioural intention of undergraduates to ensure suitable platforms can be prescribed to ensure e-learning and teaching can proceed smoothly.

Research Objectives

Therefore, this study will look into the behavioural intention of undergraduates in using e-learning systems. Specifically, the researchers intend:

RO1: To discover the relationship between performance expectancy and the undergraduates' behavioural intention in the usage of e-learning systems.
RO2: To discover the relationship between effort expectancy and the undergraduates' behavioural intention in the usage of e-learning systems.
RO3: To discover the relationship between social influence and the undergraduates' behavioural intention in the usage of e-learning systems.
RO4: To discover the relationship between facilitating conditions and the undergraduates' behavioural intention in the usage of e-learning systems

Significant of Study

This research can benefit tertiary education students, academics, and education institution management. This study's findings allow them to understand better the factors that would affect the usage of e-learning systems in the education industry.

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On a larger scale, the findings can also benefit the system quality of Malaysian Higher Education. Since the Movement Control Order (MCO) has changed the method of teaching and learning in the MOHE system, maintaining the standard of Malaysian education is important too. This is because when MOHE understands the reasons for the problems faced by undergraduates, changes can be made based on the detected factors, which can be a huge step to help improve the e-learning systems. Moreover, MOHE could have a more concrete idea while planning or mapping the future development of e-learning systems in Malaysia. In the future, the successful implementation of e-learning may benefit society if the integration of new learning methods could be adopted in Malaysian society.

As global communication technology is proliferating in our generation, e-learning could benefit everyone in society in many ways, such as through education, work, or connecting people around the world anytime, anywhere. By improving the e-learning systems based on the findings from this research, education will be easily accessible to all, and the quality of education will be enhanced.

Literature Review

According to Jethro et al. (2012), e-learning is computer-assisted learning. Arkorful and Abaidoo (2014) look into the effectiveness of e-learning in teaching in higher education. Their study showed some concepts that individuals and institutions worldwide have shared on using and implementing e-learning technologies through observations. The significance or definitions of e-learning as provided by different scholars and the duty of e-learning in tertiary education institutions regarding the teaching and learning processes and the pros and cons of its adoption and implementation were emphasised in their study.

While Noesgaard and Ørngreen (2015) study suggested that it can be challenging to enhance teaching performance by employing e-learning, as academic personnel can use various tactics to prevent significantly varying job-related practices. Sulaiman (2014) research reported the findings of a study on Malaysian undergraduates' perceptions of online learning. This research showed a general suggestion from students who prefer to use video conference while communicating in-meeting chat, improve Internet facilities within the campus, and include this method in other physics courses.

Sun and Chen (2016) reviewed many previous studies on online teaching and learning. Based on their findings, the scholars stated that a useful online command depends on four things: well-planned course content, educators, two-way communication, the existence of a formation community; and rapid development of technology.

Unified Theory of Acceptance and Use of Technology (UTAUT) is a model developed by Venkatesh, Morris, Davis, and Davis in 2003. This theory was formulated because too many models were available to justify users' acceptance of the latest technologies. Researchers can only select one most suitable model to explain their experiments and have to ignore other valuable constructs from alternative theories. Therefore, they thought that a combined perspective of users' acceptance is required through the evaluation and synthesis of different technology-related theories.

This conceptual research framework eliminates the four moderating factors: age, gender, experiences, and voluntariness of use. This is because the research merely aims to discover the

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key determinants that directly affect the outcome of undergraduates' learning through online learning systems. Past studies do not include these moderators in their research models (Mahande & Malago, 2019; Almaiah et al., 2019; Halili & Sulaiman, 2018). According to Dwivedi et al. (2019), the four moderators are only needed the most in research if the participants from the same context significantly differ.

The study has also given an example of the voluntariness moderator; the UTAUT model suggests that everyone who first learns about new technology has the freedom to decide whether they want to adopt the technology. However, this assumption cannot be applied when the authority demands the compulsory adoption of specific technology by all people within that organisation. Thus, it implies that the moderating factors may be irrelevant to a particular situation and inappropriate to apply in all contexts.

According to Venkatesh et al. (2003), performance expectancy is how people perceive that technology can help them obtain benefits in their job performances. Studies have that performance expectancy significantly influences the user behavioural intention in adopting a technology (Mahande & Malago, 2019; Almaiah et al., 2019; Bellaaj et al., 2015; Sarfaraz, 2017). Perceived usefulness is the primary aspect of performance expectancy that regulates students' intention to employ e-learning systems for academic purposes (Alshahrani, 2017 Hence, the performance expectancy could be related to the factor of e-learning system quality in this research.

H_1: There is a positive relationship between the perceived usefulness and undergraduates' behavioural intention to use e-learning systems.

Venkatesh et al. (2003) stated that effort expectancy is how easily an individual can use the technology. The study by Almaiah et al. (2019) mentioned that effort expectancy is whether students consider an online learning system convenient and easy to be understood. When the students recognise that an e-learning software is easy to use and can be easily manoeuvred, this will increase their preference for using that particular online learning software because time is not wasted learning the functions of a new application.

H_2: There is a positive relationship between the perceived ease of use and undergraduates' behavioural intention to use e-learning systems.

Social influence is the intensity of perceiving that one should use the technology due to others' opinions (Venkatesh et al., 2003). According to Alkharang (2014), a person with lower technological and digital experiences will be influenced by peers. Besides, his study also indicated that advertising campaigns and their efforts to raise awareness also play a part in influencing people to adopt online learning. Thus, the social influence construct could be related to opinions from peers, lecturers, and the university's management.

H_3: There is a positive relationship between social influence and undergraduates' behavioural intention in using e-learning systems.

Facilitating conditions are when a person perceives that technology is assisted by organisational and technical infrastructure (Venkatesh et al., 2003). Some studies have shown that facilitating conditions significantly impact students' behavioural intention in using the

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technology (Samsudeen & Mohamed, 2019; Alblooshi & Hamid, 2019; Almaiah et al., 2019). When students have a stable Internet connection and a fast Internet speed, they will be likeable to use the e-learning systems. According to Halili and Sulaiman (2018), facilitating conditions such as ICT infrastructure and facilities are the most crucial factor in adopting ICT technology among Malaysian 20 students in rural areas.

H_4: There is a positive relationship between Internet connectivity and undergraduates' behavioural intention in using e-learning systems.

Besides, software support from technical personnel is essential in facilitating conditions affecting the acceptance of e-learning systems among students (Iqbal & Qureshi, 2012). According to Mahande and Malago (2019), the assistance provided by lecturers and other classmates while a student encounters difficulty using the e-learning systems is also considered a significant aspect of facilitating conditions that lead to behavioural intention.

H_5: There is a positive relationship between technical support and undergraduates' behavioural intention in using e-learning systems.

Since the participants of this research are undergraduates who utilise the e-learning systems to attend classes, the voluntariness moderator does not fit this context. Also, their age group is similar; between 18 and 24 years of age. Thus, the age moderator is not suitable to be applied in this study as there is not much difference in the age group of the students. In addition, since all undergraduates have finished their secondary education, they should at least possess a certain standard of knowledge about Information Technology and Internet usage. Hence, the experienced moderator is not appropriate for this context. Lastly, gender moderator is also eliminated from this conceptual framework as this research is not examining the differences between males and females but studies the entire population of undergraduates.

Methodology

This study was conducted using a quantitative research method. This strategy was well suited for this research because it enables researchers to obtain information from vast population samples (Glasow, 2005). Snowball sampling, which falls under the non-probability sampling method, was employed. The chosen participants will refer to other people with similar characteristics to join the study, and the size of the sample will be able to increase. Snowball sampling is best adopted when researchers need to obtain data from hard-to-reach populations (Taherdoost, 2016).

The country was still in the COVID-19 pandemic during the data collection data. Therefore, it was challenging for the researchers to physically approach each sample of the targeted population as social distancing was required, and most students had returned to their hometowns during the data collection phase. Hence, survey questions were distributed via the Internet to undergraduates and were circulated among their peers.

The sample size was measured using the Raosoft Sample Size Calculator system with the input of 17401 undergraduates. Therefore, the number of 376 respondents was suggested as the sampling population for this research. It was expected to reach a total of 95% confidence level to minimise the error margin in this research. However, a total of 381 responses were received.

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This research adopted survey questionnaires by Lay et al. (2013); Ventakesh et al. (2003); Lim et al. (2008); Sánchez and Hueros (2010); and Coskuncay and Ozkan (2013) due to the suitability and validity of the questions. Five of the independent variables and one dependent variable are categorised into six sections, one section (independent variable: perceived usefulness) consisting of five questions; another section (independent variable: perceived ease of use) consisting of four questions; two sections (independent variables: social influence and Internet connectivity) composed of three questions each; and the last two sections (independent variable: technical support, dependent variable: behavioural intention) consisting of two questions each. Perceived usefulness and perceived ease of use were measured, respectively, using questions adapted from Lay et al. (2013). On the other hand, the social influence variable was measured using three questions from a previous study by Ventakesh et al. (2003). Furthermore, the Internet connectivity variable was measured employing three questions from an earlier study by Lim et al. (2008). The technical support variable was measured with two questions retrieved from the study conducted by Sánchez and Hueros (2010). Lastly, the behavioural intention variable was measured using two questions adapted from the study conducted by Coskuncay and Ozkan (2013). The items were measured with a five-point Likert scale that ranges from strongly disagree to agree strongly.

Version 23 of IBM SPSS Statistics software was utilised to compute analysis relevant to this study. According to Puteh and Hanafi (2017), the SPSS statistical package is suitable for ratifying variables as it provides extensive output compared to other statistical software.

Discussion

A moderate positive relationship between the perceived usefulness (performance expectancy) and the behavioural intention of undergraduates in the usage of e-learning systems, $r = .597$, $p < .000$. This finding is in line with the findings of research conducted by Israel and Velu (2019); Abdullah and Toycan (2017); and Awotunde et al. (2019). One possible reason why this study obtains such results is that the strength of correlation between both of the variables is that the e-learning systems are relatively new to the students. Therefore, they only have a moderate perception that employing the e-learning systems would help them attain again in the performance of their tasks.

Secondly, a moderate positive relationship between perceived ease of use (effort expectancy) and the undergraduates' behavioural intention to use e-learning systems, $r = .508$, $p < .000$. The result is similar to the findings of research by Vululleh (2018); Maina and Nzuki (2015); and Alrajawy et al. (2018). Although these studies have proved that a significantly positive relationship exists between the two variables, some of these studies showed different levels of strength of correlation between both of the variables. The respondents from different places might have different cultural backgrounds, values, and ways of thinking. Therefore, respondents of other geographical areas might perceive the effort expectancy differently. For instance, Malaysian respondents might consider performance expectancy their priority in employing e-learning systems. In contrast, respondents with limited or unstable Internet connectivity might place greater importance on facilitating conditions.

The findings showed a negligible correlation between social influence and the undergraduates' behavioural intention in using e-learning systems, $r = .136$, $p = .004$; however, the relationship between the two variables is significant. The first possible reason that might have caused the

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result of the negligible correlation between the two variables in this study is the lack of intimacy between the students and the people surrounding them within that particular context. Students had limited social interaction during the Movement Control Order (MCO) implementation. The second reason might be because the usage of e-learning systems is made compulsory, therefore not having a choice to choose the learning method. Hence, social influence affecting undergraduates' behavioural intention to use online systems is unimpactful.

A weak positive correlation between Internet connectivity (facilitating conditions) and the behavioural intention of undergraduates in the usage of e-learning systems, $r = .409$, $p < .000$. This result is similar to a study conducted by Mtebe and Raisamo (2014); and Azizi et al. (2020). According to Azizi et al. (2020), software and hardware facilities such as high-speed internet are the essential determinants influencing the utilisation of online learning systems. They also mentioned that policy formulating, planning, and well-established infrastructures in information and communication technology (ICT) are necessary to successfully implement an effective online learning system.

It shows a negligible correlation between the technical support (facilitating conditions) and the behavioural intention of undergraduates in the usage of e-learning systems; however, the relationship is significant between the two variables, $r = .283$, $p < .000$. This finding is similar to the previous studies by Usoro et al. (2014); Dermentzi et al. (2018); and Samat et al. (2020). According to Dermentzi et al. (2018), those online users who have experience engaging with online academic communities are more likely to embrace the e-learning systems. This is because they know using online learning systems and can seek support from their academic communities when they encounter a technical problem. Therefore, the finding of this research implies that the prior experience of an individual in using the e-learning systems, the performance expectancy, and the effort expectancy have a direct effect on the relationship between the technical support and students' behavioural intention in adopting the online learning systems.

Conclusion

For a period, e-learning was made mandatory for all students in Malaysia, especially undergraduates who are pursuing their tertiary education. The pandemic situation eased, and the country is moving to the endemic stage. Students gradually shift back to normalcy, where physical classes are the setting of choice. However, this does not mean that e-learning is no longer helpful. It still is because the system allows greater flexibility in teaching and learning. Future research could be done by increasing the geographical coverage of the studies, and more public and private educational institutions could be investigated. This would provide a more diverse set of data due to the differences in the targeted population's geographical areas and cultural contexts. Therefore, it will better understand undergraduates' behavioural intention in using e-learning systems. The findings should be insightful and beneficial in helping to chart the next chapter in the teaching and learning for the education industry.

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