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UNDERSTANDING STUDENT'S BEHAVIOURAL INTENTIONS TO USE E-LEARNING SYSTEM IN HIGHER EDUCATION INSTITUTION IN KLANG VALLEY, MALAYSIA.

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ABSTRACT

With progression in technology, there have been changes in education especially in terms of approaches, materials and technology. Looking into the application of internet in education, online learning known as e-learning has emerged on a global scale. However, E-learning is still new in Malaysia, there is a lack of incentives to use e-learning and there have no clear policy to use e-learning. Therefore, the objective of this study is to determine the students' intention to use e-learning system. A survey was conducted and 435 students responded to the questionnaire. The Theory of Planned Behaviour and Technology Acceptance Model are applied in this study. Descriptive analysis and binary logistic regression analysis were used to analyse the data collected. The result shows that gender, perceived behavioural control, subjective norm such as government and social media and experience in using e-learning have significant relationship with students' intention to use e-learning. The Malaysian education policy and practice especially on e-learning systems has to be reviewed from time to time by the government through the Ministry of Education to make sure it is relevant to the needs and aspirations of Malaysian society and to raise the standards of the Malaysian higher education system to new heights.

Keywords: *E-learning Systems, intention, Theory of Planned Behaviour, Technology Acceptance Model.*

INTRODUCTION

Information and communication technology (ICT) has spread through nearly every aspect of people's lives. Technology is changing the way people, firms, and institutions present, disseminate, and communicate their messages, creating a ubiquitous learning environment and an accelerating information society. The advent of the Internet has greatly influenced the way knowledge and information are transmitted. This fact has led to the emergence of e-learning in combination with the new technology opportunities.

Over the past decade, learning management system (LMS) such as Course Networking, Moodle and Blackboard and textbook supplemental material have provided High Education Institution (HEI) instructors with a variety of e-learning tools that may

enhance their instructional and assessment activities (Neyland, 2011). These tools are often used to create a blended learning environment. A blended learning environment is a learning environment that syntheses face-to-face instruction with e-learning tools embedded in course support software such as course material repositories, online quizzing or test, discussion boards, blogs and assignment submission. E-learning has become an increasingly popular learning approach in HEIs due to vast growth of internet technology. The main purpose of e-learning is to increase accessibility of education and reducing costs and time as well as improving students' academic performance. This approach of learning facilitates different students at different continents to attend the same classes almost at the same time. Nowadays, technology is becoming the medium for teaching and learning without being at university campuses. This technology enabled instructional method is meant to improve quality of education and student academic performance.

E-Learning Systems in Malaysia

Most Malaysia HEIs are concentrating more to provide an ICT infrastructure to support online learning compared to firm plan for using ICT as a tool for teaching and learning, course development, course structure and assessment (Azizan, 2010). Preparation for use of the ICT in teaching and learning seems to be still in the drawing boards or still in the mind of the person responsible for managing the e-learning. The rapid growth of web-based technology and the high usage of Internet have made teaching and learning via the online mode more viable in recent years.

According to International Telecommunication Union (2014), Internet had penetrated 68 percent of the online population in Malaysia. E-learning become popular and is widely used in many universities in the world today. In Malaysia, the rapid development of ICT has necessitated all Higher Education Institutions (HEIs) to move fast to embrace e-Learning among the lecturers and their students. Chalk and board will not be eliminated in class but it will be less emphasis on chalk and board methods. It is encourage using more interactive digital content which is e-learning.

Currently, there are around 20 public HEIs such as UKM, UPM, USM, UMP, UNIMAS and UPSI, 7 private HEIs such as AEU, OUM, MMU and NUC and 3 polytechnic such as PUO, PSA and PJB are using e-learning system in Malaysia (Ministry of Higher Education, 2011). In Malaysia, majority of the HEIs Learning Management Systems (LMS) was acquired by open source (57.7 percent), bought commercially (34.6 percent) and built in house (15.4 percent) (Ministry of Higher Education, 2011). According to Azizan (2010), even though many HEIs are adopting to virtual learning system, however, some HEIs do not use e-learning system to add value to their teaching and learning activities. For example, UTM, UMP, UMK, UTeM, UTHM, USIM, AeU and PSA do not involve students by using e-learning systems. The majority of the Malaysia HEIs use e-learning for communication, productivity, administration and content development. Only a quarter of the HEIs in Malaysia offer 0-20 percent of e-learning course.

Nowadays e-learning has a competitive advantage and many HEIs have implemented it and this has impacts on students' performance. The concept of E-learning is still very new to Malaysian students although Malaysia has been encouraging ICT education in HEI. Little is known about the effects of individual reactions to e-learning effectiveness upon performance, either lecturers or students. This might be due to the low interactive

technology which is not enough to contribute to the intention to use e-learning systems. According to Embi (2011), about a quarter of lecturers and students in Malaysia do not think that e-learning system is effective to them especially on integrations with other systems. In the contrary, some country's higher educational institutions use highly interactive technology which directly improve students' intention to use e-learning in general (Rodgers, 2008). However, a research has shown that in Malaysia, the majority of the lecturers rarely access the e-learning system which will directly influence the student intention to use e-learning as a learning mode (Embi, 2011). To be successful, lecturers must breathe life into courses so that they engage students, regardless of the course delivery medium such as in a traditional classroom, online, or some combination (McGurn & Prevou, 2012). Lecturers must have technical knowledge and skills to operate and incorporate the technology used in the classroom (Callahan et. al, 2013; McGurn & Prevou, 2012) and then must be able to popularize the use of that technology to students. Therefore, it is important to examine the student's intention to use e-learning systems so that government and HEI can maximize the students' utilities and diversified their services.

LITERATURE REVIEW

Technology is a tool used to remove geographical barriers and facilitates everybody to learn anytime and anywhere without the presence of the lecturer. The 'e-' in e-learning is a prefix that stands for 'electronic' and refers to information technologies, business, and almost anything connected to or transmitted over the Internet (Straubhaar & LaRose, 2004). Nonetheless, upon looking at the various definitions of e-learning below, two perspectives can be noticed. Some scholars emphasise the central role of technology. For example, Rosenberg (2001) states that, e-learning involves the utilisation of internet technologies to deliver learning opportunities. Some writers, such as Urdan & Weggen (2000), even extend the range of technology to be encompassed in e-learning that includes audio/video tapes, CD ROM, TV and radio. Recently, this definition has been further extended to embrace mobile and wireless learning applications (McGill et. al, 2014). However, Mulwa & Kyalo (2013) and Rosenberg (2001) take the view that, e-learning is only a network or involve the using internet and thus exclude other technologies, because unlike the internet, these technologies are not capable of instant updating, storage or retrieval, distribution and sharing of instruction or information.

On the one hand, some scholars employ a broader definition of e-learning. For instance, Khan (2005) defines e-learning as an innovative approach for delivering a well-designed, learner-centred, interactive, and facilitated learning environment to anyone, anyplace, anytime, by utilising the attributes and resources of various digital technologies along with other forms of learning materials suited for open, flexible, and distributed learning environment. Khan (2005) argues that, e-learning is essentially a learner-focused model and stresses interaction. In the same vein, McConnell (2004) places emphasis on networking people and resources. For McConnell, e-learning is learning in virtual or networked groups and communities. This view of e-learning suggests collaborative learning where the students share, cooperate, provide support and engage in relevant and meaningful processes. The emphasis is emphatically on 'learning' and not on the technology as such (McConnell, 2004).

Definition of e-learning in this study is thus very similar with Mulwa & Kyalo (2013) and Rosenberg (2001), where e-learning is defined as the facilitation of learning

through internet technology where the use of the internet is either a resource utilised by the students to aid their study or as a means for delivering distance learning courses. Other technologies such as the computer, CD and DVD, which have been used and integrated into the higher education system in Malaysia are not implied in the definition of e-learning in this study because the earlier technologies lack students' interaction in the educational process (Salman et al., 2013).

MATERIAL AND METHOD

Conceptual Framework

Theory of Planned Behaviour (TPB) and Technology Acceptance Model (TAM) are sufficient to adequately explain the relationship between the components in TAM and TPM and the relationship between the intentions to use e-learning. The relationships among these constructs are integrated in a conceptual model depicted in Figure 1. The model is a combination of TAM and TPB with student gender and experience as the additional factor.

Attitude is the degree to which an individual has a favorable or unfavorable evaluation towards a particular behavior. In this study, the most critical belief underlying a students' attitude towards adopting e-learning is the students' perceptions about the usefulness of e-learning systems. Many researchers have proved that attitude is an important variable towards e-learning and generally the students' attitudes are positive (El-Gamal & El-Aziz, 2011; Nassoura, 2012; Penny, 2011)

Subjective norm refer to the social pressure on individuals to perform or not to perform certain behavior (Ajzen, 1991). In the context of e-learning systems usage, subjective norm has manifest as peer influence and superior influence such as course leaders, school authority and adopting peers (Mathieson, 1991).

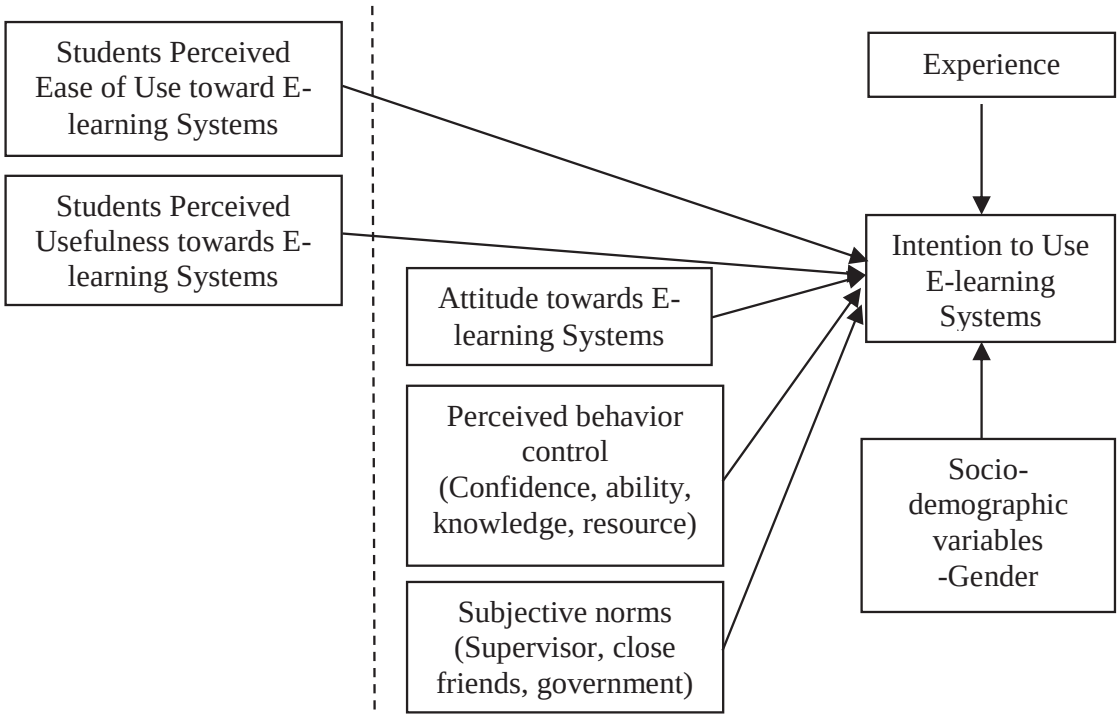
Perceived behavioral control is described as individual capability to perform a certain behavior (Ajzen, 1991). According to Taylor and Todd (1995), technology adoption and usage behaviour has related the constraints to technology usage especially the easy or difficult to use new technology. It is similar with a research done by Sparks et al. (1997), where they state that perceived difficulty is the most important factor underlying perceived behavioural control. There are many control factors which may facilitate students' intention to use e-learning system such it depends on their ability, convenient to connect to internet or even the speed of internet will influence their usage of e-learning system.

Perceived usefulness refer to an individual beliefs about using the technology will enhance his or her performance (Davis, 1989). It is believe that for the online course users who adopt online classes, they need to find e-learning system as a useful tool to improve their performance in learning. Studies from Information Technology (IT) area proves that the users' perceived usefulness toward an IT system has positive influence on the success of an IT system (Sawang & Unsworth, 2011; Davis, 1989).

Perceived Ease of Use is the degree to which an individual believes that using a particular system would be free from effort. A few researches have shown that perceived ease of use influenced student intention to use e-learning systems indirectly through

perceived usefulness (Mashhour & Saleh, 2010; Andersson, 2010; Hill & Wouters, 2010; Penny, 2011).

Intention is described as the consumers' willingness to give effort to perform a particular behavior. According to Venkatesh and Morris (2000), students' confidence in using e-learning systems to perform specific tasks such as assignment, discussion or blogs coupled by easy access and use will influence the student future possible use of e-learning systems. Furthermore, few researchers have addressed socio-demographic profiles such as gender especially male students have a great impact on their intention to use e-learning systems (Venkatesh & Morris, 2000; Broos, 2005; Fisk & Stevens, 1993).



[Source: Adapted model from Ajzen (1991) and Davis (1989)]

Figure 1: Conceptual framework of TPB and TAM with application towards intention to use e-learning system among higher education institution students in Klang Valley, Malaysia

Sample and Questionnaire

A self-administrated questionnaire and multi stage sampling method was used in this study. A total of 435 students who are currently enrolled in HEI in Klang Valley, Malaysia were interviewed. A Likert scale of 1 to 5 (1 represent strongly disagree and 5 represent strongly agree) was used to measure the students' intention to use e-learning systems.

The self-administrated questionnaire consisted of the statements that measured the components of TPB and TAM. The questionnaire was divided into nine sections. Section A

measure on the students' awareness towards e-learning system. Section B measure on the students' experience towards e-learning systems. Section C until section H asked about the students' attitude, perceived usefulness, perceived ease of use, subjective norm, perceived behavioural control and intention to use e-learning. Section I measure the students' socio-demographic profile.

Method of Analysis

Descriptive statistics, reliability test and binary logistic regression were used to analyze the information which gathered from the respondents. Descriptive analysis was used to describe the sample in this study. Reliability analysis was carried out in this study to determine how accurate the measurement made on a certain variable (Lay & Khoo, 2009). Binary logistic regression was used to determine the extent to which selected socio-demographic characteristic and factors influences students intention to use e-learning system.Therefore, to accomplish the main purpose of this study, a model was employed to determine the extent to which socio demographic characteristic such as gender and latent factors can influenced the students' intention to use e-learning system. The equation of the model is shown below:

$$\ln \frac{\pi}{(1-\pi)} = \beta_0 + \beta_1\chi_{\text{gender}} + \beta_2\chi_{\text{attitude}} + \beta_3\chi_{\text{perceived behavioural control}} + \beta_4\chi_{\text{perceived usefulness}} + \beta_5\chi_{\text{perceived ease of use}} + \beta_6\chi_{\text{subjective norm}} + \beta_7\chi_{\text{experience using e-learning}} + e_i$$

Where β_0 represent constant and β_i represent the coefficient of X_i.

Dependent variable is 'Intention to use e-learning' which have two categories such as 'I have intention to use e-learning as a mode of learning' coded as 1 and otherwise coded as 0. Seven independent variables are chose in this study. Students' socio-demographic variables such as gender independent variable because according to Ajzen (2011) these variables are expected to influence intentions. Students' attitude, perceived behavioural control, perceived usefulness, perceived ease of use and subjective norm were selected as independent variables where many research have shown that this variables have significant relationship with students' intention to use e-learning system (Paul, 2012; Punnoose, 2012). Experience of using e-learning system by the students was selected because there is research shows that actual use of e-learning have significant influence on students' intention to use e-learning system (Oye et al., 2012).

RESULTS

The Cronbach's alpha value in this study was 0.835 and this showed that there was consistency among the Theory of Planned Behavior (TPB) items and Technology Acceptance Model (TAM). Therefore, the model is fit for this study.

Socio-demographic Information

Table 1 shows the socio-demographic profile of the students. The result show that more than half (n=223, 51.3%) were female students. Malay (n=226, 52%) was the prominent race group followed by Chinese (n=158, 36.3%) and Indian (n=35, 8%). The majority of students stay in urban area (n=261, 60%). Most of the student was 20 (n=224, 51.5%), followed by 21 (21.6%), 22 (18.9%) and 24 (3.4%). Majority of the students have household size between 3 to 5 people (43.3%). More than half of the students (n=219, 50.3%) were Diploma students, followed by Foundation students (24.8%) and Bachelor Degree students (23.9%). In term of income or pocket money, 60.8% of the students receive RM500 and below per month, followed by RM801 and above per month (24.0%) and less than RM300 per month (30.2%).

Table 1: Demographic Profile of Students (n=435)

Characteristic	Percentage	Characteristic	Percentage
Gender		Area	
Male	48.7	Urban	60.0
Female	51.3	Rural	40.0
Race		Age	
Malay	52.0	20	51.5
Chinese	36.3	21	21.6
Indian	8.0	22	18.9
Others	3.7	23	3.2
		24	3.4
Household Size		Others	1.4
2 and below	29.2		
3 to 5	43.2	Education level	
6 and above	27.5	Foundation	24.8
		Diploma	50.3
Income		Bachelor	23.9
Less than 300	30.2	Master	0.7
301 - 500	30.6	PhD	0.2
501 - 800	15.2		
801and above	24.0		

Dimensions of Students Awareness and Experience towards E-learning Systems

Table 2 shows the students' awareness and experience towards e-learning systems. The results shows that ninety nine percent of the students have heard about e-Learning systems and 96.6 percent of students are using e-learning as a mode of learning. However, only 27.8 percent of the students will use e-learning systems every day (121 students), 232 students use e-learning systems once a week (53.3 percent), 45 students use once in every two week (10.3 percent), 24 students use e-learning once in a month (5.5 percent) and only 13 students never use e-learning systems at all (3.0 percent).

Table 2: Students' Awareness and Experience towards E-Learning Systems

Statement	Percentage (%)
Have you heard about e-learning systems?	
Yes	99.3
No	0.7
Have you ever use e-learning as a mode of learning?	
Yes	96.6
No	3.4
How often do you use e-learning systems?	
Everyday	27.8
Once a week	53.3
Once every two week	10.3
Once in a month	5.5
Not at all	3.0

Binary Logistic Regression Analysis

Binary logistic model has been used in this study to find the extent to which selected latent factors and students' intention in using e-learning system. The estimated parameters and the statistical significance levels are shown in Table 3. The results of this study find that latent factors affect the students' intention to use e-learning were gender, perceived behavioural control and experience using e-learning. The findings indicate that perceived behavioural control will significantly influence the intention of students to use e-learning. Students who believe they have the ability and have more confidence in using e-learning are 1.493 times most likely to have higher intention to use e-learning.

The estimate coefficient for gender is positive and significant at 95 percent level of confidence. The results showed that female student were 1.791 times most likely have higher intention use e-learning as a mode of learning then male students. Based on the statistically significant coefficients, subjective norms or students' referent is an important determinant for students' intention to use e-learning and the effect is positive. This finding indicated that the students with the influence of social media and government were 1.262 times more likely to have higher intention to use e-learning than students who have less influence by the government and social media.

The experience of using e-learning system has positively influenced the probability of students' intention to use e-learning system 6.769 times more. It means that an increase in students experience in using e-learning will increase their intention to use e-learning. The study was similar with a research done by Oye et al. (2012) where the actual use of e-learning system have significant influenced on students intention to use e-learning systems.

Estimate coefficient for perceived behavioural control is positive and significant at 99 percent level of confidence. This shows that students who think that it is easy to use e-learning, the likelihood of their level of intention will increase 1.493times than the students who that that it is difficult to use e-learning.

In order to assess how well the model fits the data, Homer and Lemeshow test was developed. As shown in Table 3, the value for Homer and Lemeshow test was 0.577 which is not significant. A non-significant value shows that the model fits for this study. Collinearity was tested by using tolerance and variance inflation factor (VIF). The results show that the tolerance for all independent variables was more than 0.1 and the value for VIF were less than 10. Therefore, there was no collinearity within the data.

Table 3: Estimated Logic Model for Students' Intention to Use e-Learning System

	Estimated Coefficient	Standard Error	Significant Level	Exp(B)	Collinearity Statistics	
					Tolerance	VIF
Gender	0.583	0.274	0.033**	1.791	0.961	1.040
Attitude	0.151	0.134	0.260	1.163	0.993	1.007
Perceived Behavioural Control	0.400	0.133	0.003***	1.493	0.988	1.012
Perceived Usefulness	0.153	0.133	0.250	1.166	0.984	1.017
Perceived Ease of Use	0.170	0.137	0.215	1.185	0.973	1.028
Subjective Norm	0.233	0.129	0.072*	1.262	0.999	1.001
Experience using e-Learning	1.912	0.566	0.001***	6.769	0.971	1.030
Constant	-0.447	0.575	0.437	0.639		
-2 Log Likelihood	369.340		Nagelkerke R Square			0.123
Cox and Snell R Square	0.075		Hosmer and Lemeshow Test			0.577

****Statistically significant at 0.01 level, **at the 0.05 level and *at the 0.10 level*

DISCUSSION AND CONCLUSION

The use of e-learning systems is gaining popularity within the Malaysia HEIs context due to the rapid growth of Internet technologies. However, much of the debate about e-learning behaviour is not easily understood because e-learning concept is still new in Malaysia where majority of the HEIs in Malaysia have use e-learning less than 3 years. Therefore, this study seeks to identify the factors which will influence students' intention to use e-learning in order to formulate alternative policies to improve the education in Malaysia.

Students who have experience in using e-learning system have higher intention to use e-learning system. More importantly, the power and potential of the technological and the skills of the lecturers should be blended together to offer totally great learning experience to learners at all levels. A well-blended learning approach is expected to be able to cater for the diverse needs of most learners. With the help from the lecturer, the student can explore more about e-learning system and build up their confidence, knowledge and ability to use e-learning system. Subjective norm is an important factor in this study which will influence student intention to use e-learning system. It is clear that people responsible for e-learning should take advantage of social influences in promoting the use of e-learning by encouraging course instructors to use e-learning management system, since they can influence students in the use of the system. E-learning managers can also focus on educating students and lecturers to use e-learning through training, word of mouth, printed leaflets, posters and electronic means such as university website, and social media. Perceived behavioural control is another factor which will influence students' intention to use e-learning. Some ways of improving perceived behavioural control would be provide proper training to students and lecturers on the benefits of using the e-learning technologies to help them establish ability and confidence towards using e-learning system.

Future study will be needed to examine how lecturers' perceptions towards the use of e-learning system as a mode of teaching. It is interesting to identify the lecturer willingness to use e-learning systems in Malaysia.

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