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FACTORS AFFECTING STUDENT'S PERCEPTION AND ACTUAL USES OF LMS IN MALAYSIAN UNIVERSITIES

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Abstract

This is a conceptual paper to study the factors affecting students' perception and actual use of the Learning Management System (LMS) in Malaysian universities. The study reviews selected literature on the topic and adapted the model by Abbad and de Nahlik (2009) for usage within the Malaysian higher education context. Anchored on the Technology Acceptance Model (TAM), five factors (subjective norms, internet experience, system interactivity, self-efficacy and technical supports) are discussed and contextualized for the local study. A full model is also described at the end of this paper.

Keywords: LMS, Malaysian Universities, Learning Experience, E-learning system

Introduction

In recent years, new challenges and demands on the educational system existed due to the swift changes and rapid improvement in the technology. The awareness on importance of changing and improving the existed traditional system to an online learning system has increased significantly. Many educational institutions have started to use the technology in conveying the education and moving forward by implementing the e-learning system, to be at the same par with the evolution in technology.

Consistent with the main seven applications in MSC (Multimedia Super Corridor) which consists of the Electronic Government, Smart card (mycard), Telehealth, R&D Cluster, Economic Business and Technopreneur Development, the Ministry of Education (MoE) Malaysia in conjunction of Malaysian Administrative Modernisation and Management Planning Unit (MAMPU) have developed own e-learning system known as Learning Management System (LMS) to replace the existing traditional management system.

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According to Ahmad Fauzi, Rohani, Wan Marzuki, Wan Zah and Wong, Learning Management System (LMS) can be defined as a web based technology that accommodates the process of planning, distribution and evaluation in learning system. Meanwhile, Nor Azura and Lee clarified the Learning Management System (LMS) as an alternative and easier way for lecturers and students to communicate. They can have any interactions, discussions and sharing learning materials through Learning Management System (LMS).

A Learning Management System (LMS) allows the instructor to create and convey the learning materials, observe students participation and monitor the students' performances. A Learning Management System (LMS) also provides an interactive interface for the students to communicate among them, for sharing information or for the ease of getting a consultation from their instructor. Not only that, a Learning Management System (LMS) supports the management process such as handling examination, knowledge delivery, virtual classes and academic planning.

Literature review

In this part we reviewed the previous studies about the factors affecting student's perception and actual uses of LMS and some of the studies that have been done in Malaysian universities. We adapted our model from one study which have been done in Jordan by Abbad and de Nahlik (2009). The study was about the factors affecting student adoption of E-learning systems in Jordan.

Subjective norms (SN)

What comes to the mind of people when they hear the word 'Information Technology'? Numerous changing have an effect of system utilize, however earlier research offers two determinants which might be extremely important which are perceived usefulness and perceive ease of use. It has been suggesting by the researcher that the Technology Assistance Model (TAM) steadily produced in addition to tests clear predecessors to its two use-beliefs construct. TAM was proposed by Davis in 1986. This is an Information System Theory to show precisely how end users show up for you to just accept in addition to utilized a technology. TAM possesses proved to be some sort of theoretical style in assisting to describe in addition to estimate user conduct involving Information Technology (Paul Legrisa, 2003). The combination of the prior empirical evidence and expectancy ended up being produced from the prevailing literature. (Abbad&Nahlik,2009).

(Bradley, 2009) Pointed out that subjective norm is determined by the user's normative thinking which might be recognized objectives associated with distinct people as well as organizations, as well as the n to accept most of these objectives. Suggested by (Fishbein &Ajzen, Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research, 1975) see subjective norm as a person's understanding that will important others feel should or should never carry out your behaviour involved. (Davis & Fred, 2000). Use the construct of subjective norm to record interpersonal influence. The primary determinant regarding behavioural intent known as

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subjective norm was included in Theory of Reasoned Action (TRA) (Fishbein &Ajzen, Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research, 1975) andthesubsequentTPB(Ajzen,1991).(Shirly&Todd,1995)Makeuseoftheterm"subjective norms" as to be able to consider a person's conceptions of social challenges place on him or her to accomplish the habits you want. Based on the research done by (Grandon, Alshare, & Kwan, 1995) subjective norm has been observed becoming a considerable factor in influencing a university or college students' intention to work with e-learning. Lee (2006) found it drastically affected perceived usefulness. This particular study incorporates subjective norms as an unbiased variable while using the expectation that they are confidently have an effect on behavioural intentions to make use of e-learning amongst university students. In contrast, the research carried out by Ndubisi (2006) showed that subjective norm experienced zero considerable relation to university students' intention to use e-learning. The TPB model asserts that attitude, subjective norms and perceived behavioural control are directly determinants regarding behaviour objective, which has effects on behaviour.

Internet Experience (IE)

There are many factors determining the success of Learning Management System (LMS) usage. Internet Experience is one of the identified factors. A user's knowledge or expertise in doing tasks on the internet can best describe the meaning of internet experience. Other than that, internet experience can also be defined as the process of personally observing, encountering or undergoing something through the internet. The usefulness of LMS is significant with more experiences in using the internet.

Md. Amirul, Chuthamas, Ahmad and Hee Liang (2010) stated that LMS used advanced communication technology-based to connect the students and the lecturers and also to convey the teaching materials. Because of that, any computer skills and knowledge or the ability of operating a computer with the familiarity of using the internet will absolutely giving the student an advantage.

LMS is a learning method that makes students and lecturers life become so easy from many aspects such as time consuming, energy and financial. This is because, unlike the traditional learning method, students and lecturers can easily interact and communicate between each other whenever they want, wherever they are. In traditional learning method, if a student facing difficulties or needed any advice from the lecturers, they must travel and find the lecturer in their lecturers' room, not only which, if they are unlucky, the lecturers might not be in their room at that time and the student need to wait for sometimes. This means they have to have many efforts just to reach the lecturers.

In LMS, simulations, online assignments, quizzes, video conferencing, electronic chatting and e-mail discussions were used to deliver the materials that come in many types such as graphic, audio, text, video or animation (Md. Amirul, Chuthamas, Ahmad and Hee Liang (2010)).

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According to Volery and Lord (2000), there are three main important factors in the succession of LMS and other than technology and instructor, the previous use of technology which consists of internet experience are also important.

According to Selim (2007), a student's important succession factor in this network and technology era includes the computer skills (experience), time management and discipline. This means, students need to always be updated with information. If they are not internet savvy, they might be left out and it will create a problem in their leaning process. With some internet skills and knowledge, the students can reduce the risk of incurring an increased in psychological costs. Every work will be easy and smooth. The students can also be independent which means they don't have to rely on their friends or lecturers to access the leaning materials.

System Interactivity (SI)

A learning management system is a type of tool used to manage the knowledge assets of an institution and make them available to learners (Graf, 2008). Learning management system is a combination of course management, learning activities, availability of learning contents to the learners and process of evaluating outcomes. Teachers, students and parents are now more connected nowadays due to invention of Learning Management System (LMS) where they are so much integrated with each other. A lot of logins, everyday entering lessons topic and so on activities done in this system throughout the year. System interactivity also allows to see teacher and student activities by their parents. LMS assist to target deliver, identification or track, and reporting any time within the organization. The main goal of this system is to make connection between students and faculty and students and also students themselves. Overall, this is called system interaction (IS). This has become big source of development in e-learning through technologies to promote learning interaction. The factors of system interaction arises from synchronized and unsynchronized interactions. Thus, system interactivity is expected to be one of the factors that may affect students‟ adoption of e-learning systems. Davis, Bagozzi, and Warshaw (1989) argued that objective system characteristics have a direct impact on perceived usefulness and ease of use.

In Malaysian environment, system interactivity is the driver to any technology acceptance and this has to be tackled to enhance usage among individuals (Pearson and Young, 2002). This Malaysian universities are becoming world popular day by day. Student's attention about Malaysian universities has been growing over past few years. University Malay has ranked among 150 university of the world.

Satisfaction of system interactivity depends on e-learning environment and some others factors: System stability, ease of use, and functionality (content, Service and System) (Chen, et al, 2009, Petter& McLean, 2009 &DeLone, & McLean,2003).

–Content quality - degree of students perceived content of Malaysian universities LMS provided by lecturer, to what extent meet students' needs, variety of materials, and problem based learning.

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– Service quality - degree of students' perceived Malaysian universities services which support learners and degree of staff responsibility to respond users 'questions.

– System quality - degree of students' perception toward Malaysian universities system interactivity system stability, ease of use, and functionality.

Degree of students' perceived Malaysian universities assistance of the interaction between learner and learner, learner and lecturer, and learner and content (Moore, 1989, Liawa and Huang,2013).

– Moderate to high degree of student's perceived content of Malaysian universities.

• Notes/learning material uploading by lecturer.

• meet students 'needs.

• Variety of materials-notes, articles, contact information etc.

• Problem based learning-online forum/online feedback by lectures.

– Moderate to high degree of students' perceived Malaysian universities service.

• support learners and degree of staff to respond/give feedback from students' questions.

– High degree of students' perception toward Malaysian universities system interactivity system.

• Stability (up to date), ease of use (essay access from the resident's area, and functionality (interactively between students andlectures).

• Moderate to high degree of students' perceived Malaysian universities assist the interaction.

– The capability of learners in SRL strategies and controlling learning progress isessential.

– Communicate effectively.

The evaluation of learning management system (LMS) is crucial to ensure their effective implementation and positive impact on distance learning delivery. In order to satisfy this requirement, a new framework is introduced for the evaluation of factors of System Interactivity (IS) in educational settings for Malaysian universities.

Self-efficacy (SE)

Self-efficacy, according to the definition of Bandura (1986; in Fathema et al., 2015), refers to "an individual's judgment of his or her capability to organize and execute the course of action required to attain designated types of performances. It is not concerned with the skills one has,

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but the judgments of what one can do with whatever skills one possesses". Narrowing the definition within the context of technology, Venkatsh et al. (2003: 432) refer the term self-efficacy as "judgment of one's ability to use a technology (e.g. computer) to accomplish a particular job or task". Computer efficacy (Compeau& Higgin, 1995) and Internet self-efficacy (Torkzadeh& van Dyke, 2001), for example, are types of specific efficacy. Self-efficacy, in this context of this study, can therefore be interpreted as the student's self-confidence in his or her ability to perform certain learning tasks using the LMS.

Self-efficacy has been identified as an important determinant in the acceptance of any information systems and applications including computer, internet and LMS (e.g. Al-Haderi,

2013; Lee et al., 2007; Venkatsh et al., 2003). Past studies have shown that self-efficacy is an important influencing factor related to the acquisition of computing-related skills, intention to use, acceptance and actual as well as continued usage of technology.

Users with higher self-efficacy tend to believe that they have the ability to operate an information system, which thus influence their "choice of whether to engage in a task, the effort expended in performing it and the persistence shown in accomplishing it" (Hong et al., 2005: 206). This type of users develop a strong sense of his or her ability in using computer or an e-learning system. On the other hand, users with little confidence in their ability to use an information system might perform poorly in using the computer or the e-learning system. Accordingly, self-efficacy has been found to shown have relationship with the acceptance of usage, perceived ease of use and perceived usefulness of different types of the different types of information systems, including e-learning system.

Al-Haderi's (2013) investigation on the acceptance of information technology in public sector in Yemen provided empirical evidence to show the positive effect of self-efficacy on the intention to use, leading towards actual usage of the technology. The Al-Haderi study also found support for the positive effect of self-efficacy on perceived usefulness and ease of use. Venkatsh et al. (2003), in an earlier study, found evidence to support between self-efficacy and perceived ease of use. Similar findings were found in the study by Fathema et al. (2015), who noted that self-efficacy to be a significant determinant on determining the intention to use of the technology, perceived ease of use and perceived usefulness. In the conclusion of the paper, Fathema et al. wrote that students who were confident about their LMS skills perceived LMS as a useful technology and experience lower complexity while using it. This is in line with the findings of Hong et al. (2005), who noted that contemporary students have high computer self- efficacy and that of Compeau and Higgin (1995) who found evidence of a positive relationship between self-efficacy and computer use. Students use computer, e-learning management included, extensively for various academic purposes such as researching, downloading articles, emailing etc.

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Technical Support

Inaccessibility to internet plays a major role to several states in lagging behind underdevelopment in term progression of the information technology. Technology support had been defined as "The Effort of providing the suitable infrastructure, the needed appliances, internet access and software for using the technology".

Furthermore, the technical support will positively play an ostensible role in the flexibility of internet and technology services and e-learning in general. According to Ngai, and others (2007), technical support defined as knowledge people assisting the users of computer hardware and software products'' this included the online support services and assistance desks,hotline, facsimiles and many others .As a matter of fact, the lack or shortage of technical support will highly discourage the lecturers to use the computer system, hence discontented (Tong&Trinidad,2005). Whereas offering suitable and viable technical support to teachers will facilitate and boost the morale of these teachers hence this will efficiently integrate ICT skills into their teaching. Technical support is also offered by the IT Centre through a centralized help desk contact person, email and telephone that receives all the queries emanating from the faculty member and students calls or emails and records them into a service desk system and assign the cases to the 13 devoted blackboard specialist.

Moreover, one of the most important factor to determine the acceptance and suitability of technology for teaching is the availability of technical support (Williams, 2002). So, this is exclusively the case in the first stage of technology adoption. Shih and Fang (2004) mention that the technology support plays an important role in sanctioning adoption to practice technology services simply and in flexible way dealing with electronic commerce and using the internet . Relatedly, Ndubisi, Sinti, & Chew, (2004) emphasized that the relationship between the technical support and perceived behaviour control is substantial and encourage for many students inMalaysia pursuing their studies at the government university, as the availability of the technology support would mainly affect those students' relying on online services in their education.

Taylor and Todd (1995), draw a correlation between technology support and the perceived cognitive control. The end results indicate that, technology support's insignificant effect on perceived behaviour control of computer centres' potential consumers in Canada after he discourses the DTPB model for the first time. Mtebe and Raisamo (2014) conducted a study on 104 instructors in the higher educational institutions in Tanzania for the purpose of examining the connection between facilitating conditions and behaviour intention to implement and practice open educational resources (OER). The study discovered that, facility conditions had an inconsequential and adverse effect on OER as some lecturers and teachers described inadequate information and communication technology (ICT) as one of the threats and challenges which facing he users when adopting and using OER in teaching . Likewise, IT offers constant educational improvement and development by offering the online learning services or system, the ability to access the information, enhance the communication as well as cost efficiency

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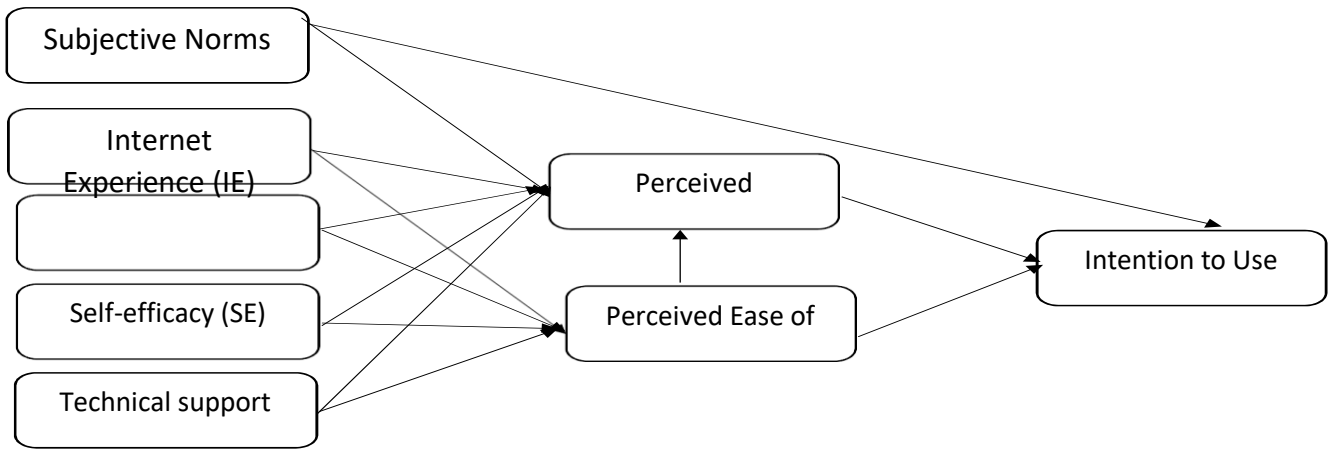
(SifeLwong and Sanga, 2007). Suitable infrastructure for ICT development such as internet , intranet and extranet is one of the major threats and challenges in higher learning educational institutions , especially developing countries , when it comes to implement the e-learning (Fares,2007).

According to Salmon (2004), the e-learning environment should facilitate teacher, lecturers and student with the higher degree of accessibility and reliability. Higher education institutions have to offer wireless and networks with high connectivity – bandwidth- to avoid the negative effects on the e-learning creativities (Kunaefi, 2006). The TAM – technology acceptance model- seeks to know and explore the external variables that influence individuals' use such as their intention, attitude, norms and dogmas (park, 2009). It suggested that the "perceived usefulness" and "perceived ease of use" of the technology affect the user's capacity and ability to engage with any certain system of technology. Furthermore, Venkatesh (1999) found that "providing suitable and viable conditions and external control served as anchors that users employ to inform perceived ease of use about information technology". Experimental evidence shows that many of e-learning projects that fail to achieve their objectives and aims did not have access or get the technical advices and supports. Volery and Lord (2000) conducted study in an Australian university and the finding of the survey conducted among 47students who registered e-learning based management course were that there are critical success factors (CSFs)in –learning technology (ease of access and navigation, interface design and level of interaction); trainer or teacher (attitudes towards students, instructor technical capabilities and classroom communication); and preceding use of technology from a student's perception.

The model



Conceptual model adapted from Abbad and Nahlik (2009)

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Discussion & Conclusion

Using LMS as a conceptual model, we construct five measures in system design quality, three measures in system usage and net benefit in system outcome as educational technology success dimensions. The analyses provide appropriate support for model. Almost all discussion were found to be significant. The current LMS analysis considers perceived usefulness, perceived ease of use and intention to use. Thus, the developed ETM considers the interrelationships and causal effects amongst the main parts of the measures: Subjective norms, internet experience, system interactivity, self-efficacy and technical supports. The study indicates that perceived usefulness and perceived ease of use have significantly positive influence to user satisfaction. All factors in system design have directly influence the intention to use. This result is in line with study by Sharkey et. al. (2006) that suggested the need of more research to explore the correlations between the independent variables of user satisfaction and intention to use. In the LMS context, we encounter that the attitude of using the system is affected by beliefs about system design which then affected the net benefit. Users' belief that good or bad system design form their attitude or interest to use the system, which eventually give positive or negative impact on the behaviour. Users also belief that the behavioural intention to use is developed by the system design and consequently, to affect user which also shaped by the system design.

The evaluation of learning management system (LMS) is crucial to ensure their effective implementation and positive impact on distance learning delivery. Many institutions find it quite easy to start with a commercial LMS, but they encounter many problems such as, pricing, linguistic, assessment tools, and suitability to target users. A review of LMS evaluation studies was carried out which indicated that the improvement of current system is required.

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