Exploring Lecturers' Acceptance of Learning Management Systems in Malaysian Higher Educational Institution

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Abstract. The purpose of this study is to explore lecturers' acceptance towards the use of Learning Management Systems (LMS) for teaching and learning in Malaysian Higher Education. LMS is viewed as a platform that enables online learning with facilities to manage and administer learning content while facilitating collaborative learning. This study applies the Technology Acceptance Model (TAM) to identify the factors influencing the acceptance of the LMS system currently applied among lecturers. Using this model we focus on identifying factors such as perceived ease of use, perceived usefulness, attitude towards use and behavioural intention to use the LMS. We conducted a quantitative study with 31 respondents to identify these factors. It was indicated that lecturers have positive perception towards the use of the LMS however they are doubtful on the effectiveness of such system. Nevertheless, the finding indicated that the lecturers found the system useful yet not easy to use. Lecturers also perceived themselves as not skillful in using the LMS due to its complexity. Therefore, we suggest that additional training need to be provided to lecturers to ease their adaptation of the system, as well as further support from the institute administration to aid in this transition. Other implications and future directions are further discussed.

Keywords: learning management system, technology acceptance model, Malaysian Higher Educational Institution

1 Introduction

The education field has rapidly evolved from just the application of traditional pedagogy towards the integration of ICT to facilitate the demands of today's learners [1]. One of such tools which has been successfully used to manage teaching and learning as an online learning platform is the Learning Management System (LMS) [2], [3]. LMS has been defined as an excellent tool to disseminate and manage learning content [4]. Some of the common LMS platforms currently applied by most educational institutions are Moodle, Edmodo, Google Classroom, Schoology and the characteristics and functionality of these platforms have been rapidly growing to adapt to the needs of the 21st-century classroom.

Nevertheless, it is common knowledge almost every higher education institution (HEI) has adapted such a platform to aid in learning management and administration. Concurrently, due to the boom of teaching and learning technology and the need to cater to the learning

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styles of millennial students, HEI is digitalizing its learning [5]. However the benefits of LMS are not just as a platform to manage learning but also to provide a means for communication and collaboration. Therefore, instructors and students have the means to synchronously (e.g. chat) or asynchronously (e.g. forum, messages) interact in their learning community [6].

In reference to the benefits of LMS and online learning, Wawasan Open University (WOU) established in 2006 grasp the benefits of such technology to offer programmes via their Moodle based WawasanLearn and Wawasan2u. Based on an empirical study done on LMS application in WOU, it was reported that the utilisation of LMS was minimal and most students view this platform as a tool to download course contents [7]. It was also found that the lecturers used the LMS only to upload their teaching materials and communicate in forums if there is a necessity to create a forum. Malaysian university lecturers were found to be constrained by aspects such as technological know-how and personal issues [2]. In addition, it was reported that lecturers were unaware of the usefulness of the LMS. In another study, it was reported that the use of LMS in WOU is negatively perceived and through training, better sustenance on development and management of course content may be achieved [7]. However, these empirical studies did not explore the factors influencing the use of LMS for teaching and learning in WOU.

Therefore, we intend to identify and explore the factors that influence lecturers' acceptance use of LMS in WOU. The study is based on the application of the Technology Acceptance Model (TAM) and the relationships between lecturers' perceived usefulness (PU), perceived ease of use (PEU), and behavioural intention (BIU) to use LMS.

2 Literature Review

2.1 Learning management systems

Learning management system (LMS) is an online application used to manage, document, track, report and administer learning contents, and may be applied for training programs, classroom teaching and learning, and e-learning programs [8]. One of the advantages of LMS is not only to distribute learning contents online but also facilitates communication and collaboration between instructors and students synchronously and asynchronously. There are several benefits of using LMS for lecturers as well as learners. From the lecturer's perspective, LMS is beneficial in managing and controlling content [9]. LMS also enables the lecturer to make modifications easily [10] and hence providing fast and accurate feedback to the students. The strength of an LMS also lies in its ability to integrate other applications to could facilitate assessment, management and teaching and learning [11]. Nevertheless, LMS is not a new innovative technology, the use of LMS has been widespread in higher education for years [12]. In Malaysia, most institutions have opted to use Moodle as an LMS platform due to it being cost-effective and versatile . The adoptation is due to Moodle being user-friendly and has huge capacities to fulfill the needs of learning for organizations [13].

2.2 Technology acceptance model (TAM)

The Technology Acceptance Model (TAM) developed by Fred Davis in 1989 has been a basis for most research on technology acceptance. It was developed based on the theory of reasoned actions (TRA) [14]. TAM is a theory developed initially for an information system that explains user perception and acceptance toward a technology [15]. This model factors five constructs as a means to explain behavioural intention and actual use of technology. These factors are namely Perceived Ease of Use ”PEOU”, Perceived Usefulness “PU”, Attitude Towards Use ”ATU”, Behaviour Intention To Use “BIU” and Actual Use “AU”. According to this model, PU and PEOU are described to directly influence ATU and BIU. Therefore, if users found a tool to be useful then they will most probably intend to use it and thus, influence their actual use of the technology [16].

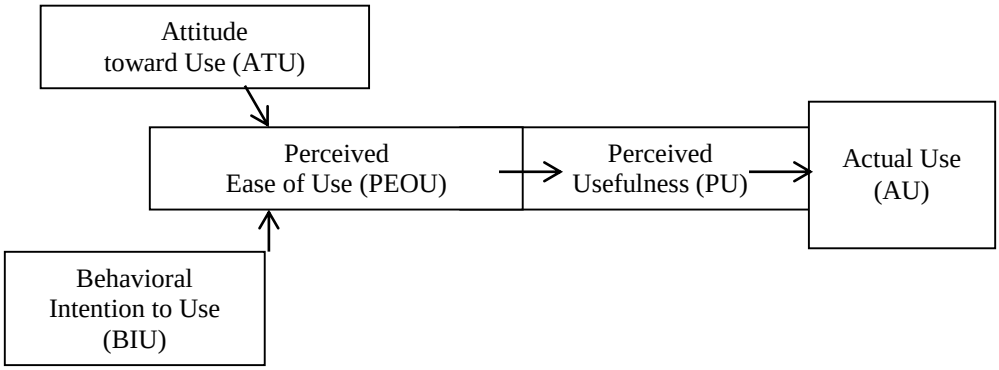

Fig. 1. Technology acceptance model (TAM) (Davis, 1989)

3 Research Methodology

In this study, the target population is the lecturers of a full-time undergraduate programme at one of the Wawasan Open University branches in Malaysia. The selection of the sample is based on purposive sampling. We targeted to collect data from 60 lecturers that were from the School of Business and Administration, School of Science and Technology and School of Humanities and Social Sciences. The online survey questionnaire was developed using Google forms. All the lecturers were emailed the link to the questionnaire and with two soft reminders to complete the questionnaire inside the two weeks’ time frame. The questionnaire was designed with FIVE (5) sections; Section A: Demographic Profile, Section B: Perceived usefulness toward LMS, Section C: Perceived Ease of Use toward LMS, Sections D: Attitude toward Usage (ATU), Sections E: Behavioural Intention to Use (BIU) the LMS. Most items of the questionnaire were adopted from Alharbi and Drew (2014) [17]. The questionnaire applied a 5-point Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

4 Findings

We distributed 60 questionnaires developed through Google Forms through email and only 31 respondents provided feedback. One of the respondents had no experience with the LMS system, therefore, he was omitted from this study hence leaving a sample size of 30. The majority of the respondents were female (N=19, 63.3 %) and 46.7% of the respondents have more than 5 years' experience using any type of LMS (N=14). SPSS 24 was used to analyse the data. Based on the data obtained, the overall reliability coefficient obtained for the instrument was $\alpha = .954$ and other reliability values for each factor are reported in Table 1. All values surpass $\alpha = 0.8$, hence deemed reliable [18].

Tab 1. Reliability of the instruments

Scale	Number of Items	Cronbach Alpha
Perceived usefulness (PU)	6	.966
Perceived ease of use (PEOU)	7	.907
Attitude towards use (ATU)	3	.949
Behavioural intention to use (BIU)	4	.918
Overall	20	.954

Based on the mean value obtained from the data, two items had the same mean value "In my job, the usage of LMS is important" and "In my job, the usage of an LMS is relevant" at Mean = 4.367, s.d. =.6687 and Mean = 4.367, s.d. =.6687 respectively. These items were from the Behavioral intention to use (BIU) scale indicating that they accept that the application of LMS for teaching and learning is important. The lowest mean score was obtained for "I feel that my ability to determine LMS ease of use is limited by my lack of experience" at Mean = 2.933, s.d. =1.2015. Other mean and s.d. values are presented in Table 2.

Table 2. Mean value of item indicating attitude toward LMS

No	Question Item	Mean	s.d.
1	Using *WawasanLearn* and *Wawasan2u* in my job enabled me to accomplish tasks more quickly.	3.867	.937
2	Using *WawasanLearn* and *Wawasan2u* improved my job performance.	3.667	1.061
3	Using *WawasanLearn* and *Wawasan2u* in my job increased my productivity.	3.733	1.048
4	Using *WawasanLearn* and *Wawasan2u* enhanced my effectiveness on the job.	3.933	.980
5	Using *WawasanLearn* and *Wawasan2u* makes it easier to do my job.	3.567	1.073
6	I do find *WawasanLearn* and *Wawasan2u* useful in my job.	3.867	.860
7	I feel that using *WawasanLearn* and *Wawasan2u* is easy for me.	3.767	.817
8	I feel that my interaction with *WawasanLearn* and *Wawasan2u* is clear and understandable.	3.700	.877
9	I feel that it would be easy to become skillful at using *WawasanLearn* and *Wawasan2u*.	3.700	1.022
10	I found *WawasanLearn* and *Wawasan2u* to be flexible to interact with.	3.600	.932
11	Learning to operate *WawasanLearn* and *Wawasan2u* is easy for me.	3.767	1.006
12	It was easy for me to get *WawasanLearn* and *Wawasan2u* to do what I want to do.	3.533	1.137

No	Question Item	Mean	s.d.
13	I feel that my ability to use *WawasanLearn* and *Wawasan2u* is limited by my lack of experience.	2.933	1.202
14	I believe it is a good idea to use a *WawasanLearn* and *Wawasan2u.*	4.267	.740
15	I like the idea of using a *WawasanLearn* and *Wawasan2u.*	4.200	.761
16	Using *WawasanLearn* and *Wawasan2u* is a positive idea.	4.100	.803
17	I plan to use *WawasanLearn* and *Wawasan2u* in the future.	4.067	.740
18	Assuming that I have access to a *WawasanLearn* and *Wawasan2u*, I intend to use it.	4.100	.803
19	As a lecturer, the usage of *WawasanLearn* and *Wawasan2u* is important.	4.367	.669
20	As a lecturer, the usage of *WawasanLearn* and *Wawasan2u* is relevant.	4.367	.615

In addition, we also measured the mean value for each of the factors from TAM (Table 3). It can be concluded that the overall acceptance of lecturers towards the use of LMS in WOU is average (Mean = 3.868, s.d. =.663). Even if the lecturers had high attitude (ATU) (Mean = 4.189, s.d. =.693) and intention (BIU) (Mean = 4.225, s.d. =.610) towards using the LMS, they did show average mean value for Perceived Usefulness (PU) (Mean = 3.772, s.d. =.918) and Perceived Ease of Use (PEOU) (Mean = 3.571, s.d. =.798) of the LMS.

Table 3. Mean value based on factors influencing attitude towards the use of the LMS

Factor	Mean	S.D
Perceived usefulness (PU)	3.772	.918
Perceived ease of use (PEOU)	3.571	.798
Attitude towards use (ATU)	4.189	.693
Behavioural intention to use (BIU)	4.225	.610
Overall	3.868	.663

5 Discussion and Conclusions

Therefore based on the findings of this study, it can be concluded that the lecturers in WOU have positive perceptions towards using the LMS systems however they are doubtful on the value of it and secondly the ease of use of the system. This can be further elaborated as they found that their skills, experience, and knowledge about the application of the LMS system is lacking. Therefore, indicating reluctance due to the complexity of the system. This was supported by research which indicated that the application of LMS may be a challenge to some lecturers and additional training is required to overcome their reluctance [19]. Hence, this study has not shown much variation to the preliminary findings by [6] on lecturers' perception of WOU's LMS application where the outcome also suggests that additional training in course management and development through the LMS. This study also disagrees with the findings by[20], as in this study even if the lecturers perceived the LMS as useful it did not affect their productivity and attitude towards using the LMS.

6 Implications and Future Direction

Although lecturers were given initial training after joining WOU, there has been a significant number of updates on the new features. Nevertheless, lecturers are not aware of these advances and require additional training to ensure that their skills and knowledge are up to date with the application and interactivity provided in the LMS. We would like to suggest additional training for lecturers and at the same time identify if their personality traits have a significant difference in their acceptance of LMS for teaching and learning. We also agree with [21] where additional research is required to identify students behaviour towards LMS to fully implement this technology in an institution. The integrated technology raises the community's participation in development [22]

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