



An Assessment of Task-Technology Fit, Subjective Norm and Internet Experience of Learning Management System in Views of Malaysian Higher Education Students

Sousan Baleghi-Zadeh, Ahmad Fauzi Mohd Ayub, Rosnaini Mahmud, Shaffe Mohd Daud

Faculty of Educational Studies, Universiti Putra Malaysia

ABSTRACT

In recent years, the use of Learning Management System (LMS) in higher education has dramatically increased. However, many students use LMS for limited purposes such as downloading course materials. There are many factors that may affect LMS utilization by students. In the present study three factors, namely Internet experience, subjective norm, and task-technology fit were examined. The participants of the study were 216 undergraduate students of faculty of education in one of the local universities in Malaysia. The results revealed that the constructs of Internet experience and subjective norm obtained a high mean value. This result suggests students who used LMS have a sufficient internet experience which could easily help them in using it. University and lecturer support seems to be the most important sources that encourage them to use LMS. Students also responded their satisfaction with the functionality of LMS to assists them in the process of learning.

Keywords: *Learning Management System, Internet experience, subjective norm, task-technology fit*

1. INTRODUCTION

The growth of Information and Communication Technologies (ICT) has significantly changed the way people handle information, interact, and share knowledge with each other [1]. In education, ICT seems to be one of the important elements in the process of teaching and learning. New innovations have been invented from time to time for the use of students and educators at every educational level. Learning Management System (LMS) is one type of ICT, which supports the process of teaching and learning [2]. In recent years, the usefulness of LMS in higher education institutions has substantially been increasing [3, 4]. This learning system combines technology features with pedagogy [4, 5]. For example, it allows students to deliver course materials, send their assignments, take quizzes, and communicate with their classmates as well as their lecturers synchronously or asynchronously [5]. However, despite the advantages of LMS, the results of several studies have revealed that students and lecturers do not fully utilize it. For example, the results of investigating LMS utilization among 249 Finnish higher education students revealed that most of them use LMS for downloading course materials and submitting their assignments [4]. Another study showed that only 14.8 percent of students in Hong Kong used LMS features for communication [6].

The success of an information system depends on its acceptance and utilization by individuals [7]. If the factors which impact on using LMS by students and lecturers are not determined, not only a substantial budget for equipping educational institutions will be wasted, but also opportunities for enhancing the quality of learning will be lost. Previous studies have investigated factors that could influence students using LMS. Among the factors investigated are subjective norm, internet experience, and task technology fit.

Subjective norm investigates the influence of people who are important to us on our behavior [12]. In fact, subjective norm is one

of the factors of TRA which was excluded by original TAM [10]. Nevertheless, [10] emphasized that for future research, investigating the conditions that may impact on social influence on individual behavior is necessary. According to [12], social influence encompasses a variety of social mechanisms that influence user perceptions of IT, but subjective norm is the influence of the other people on our mind to do or not to perform a special behavior.

Internet experience is one of the aspects of individual characteristics [15]. [16] regarded Internet experience as the amount of experience in various application of Internet. According to [27], experience has a key role in accepting technology [27]. Students with good Internet experience will not face much problem in using other application via Internet especially LMS. Most of internet application features a similar function such as blog, chatting, forum, emailing, and so on. Basically these features will be embedded in every LMS. Students with good experience involving all those features seem to understand the nature of those applications. This would help them to use it when it comes to using university LMS.

Task-technology fit investigates the correspondence between task and functionality of system; therefore, it encompasses system characteristics [20]. The results of many studies found that focusing only on utilization system does not increase the user performance [20]. In fact, there are some poor systems that are used by individuals because of social factors or the other reasons, but the performance of the users is not high [20]. The suggested reason for this is ignoring the fitness between task and functionality of the system [20]. Indeed, the correspondence between task and functionality of the system is an important factor that impacts on individual performance, but is ignored by many studies [20]. The results of several studies have revealed that the construct of task-technology fit can be considered as an external factor that affects system utilization [21, 22]. This paper will investigate three factors that are Internet experience, subjective norm, and task-technology



fit in LMS utilization. These factors were selected based on a careful review of the related literature.

2. RESEARCH OBJECTIVES

- i. To assess internal experience of students.
- ii. To assess subjective norm in views of students
- iii. To assess task-technology fit of LMS in views of students.

3. RESEARCH METHODOLOGY

The design of the present study was a survey study. The participants of the present study were 216 full-time undergraduate students at the Faculty of educational Studies at one of the local universities in Malaysia. This study is to assess students' utilization of LMS portal. For the purpose of the study, the respondents were selected from those who use the local university LMS named PutraLMS. The respondents ranged from first year students to last year students. They were randomly selected using cluster sampling. The questionnaire was distributed during week 12, at which the respondents had enough experience in using LMS, especially the freshmen.

4. RESEARCH INSTRUMENT

The constructs of the present study were Internet experience, subjective norm, and task-technology fit measured through a

questionnaire with 30 items. Among the 30 items, 14 items were self-developed, while 16 items were adopted from previous research studies. As some items were self-developed, four experts examined the content validity of the questionnaire. The reliability of the questionnaire was measured by Cronbach's alpha. The reliability indices of Internet experience, subjective norm, and task-technology fit turned out to be .75, .85 and .90, respectively. As the reliability of all constructs was higher than .70, they were acceptable [23].

5. RESEARCH FINDINGS

The discussions for the findings are based on the objectives of the study. In this study, three variables were selected to examine the use of LMS from one of the local universities in Malaysia. The three variables are Internet experience, subjective norm and Task-Technology Fit. The discussion will start with the overall mean of the three variables. Table 1 shows the overall mean and standard deviation (SD) of each variable of the study (Internet experience, subjective norm and task-technology fit). As Table 1 shows, Internet experience has the highest mean (Mean = 3.87, SD= .61) followed by subjective norm (M = 3.72, SD = .62). The lowest mean is Task-Technology Fit (M = 3.61, SD = .63). This finding indicates that the highest factor influencing the use of LMS is Internet experience. Students with good experience in handling or exploring the Internet will have advantages in using any type of application via the Internet. The respondents also reflected that they also need encouragement from lecturers, friends, and university authorities to use LMS in the campus.

Table 1: Overall Mean

Factors	Number of items	Mean	SD
Internet Experience	12	3.87	.61
Subjective Norm	7	3.72	.62
Task- Technology Fit	11	3.61	.63

5.1 Internet Experience

Internet experience plays an important part for those who want to use LMS. This is because they need to have technical skills in using the Internet in order to help them to use LMS without facing any problems. To this end, 12 items were selected for this study mainly to identify certain skills required in handling Internet. The two highest mean values refer to the ability of the respondents using social media (M = 4.93, SD = .334) and gathering information from the Internet (M = 4.86, SD = .465). This is followed by watching video (M = 4.61, SD = .631) and sending e-

mail (M = 4.55; SD = .720). However, three items obtained mean scores below 3.0, which are uploading video (M = 2.82; SD = 1.602), online shopping (M = 2.66, SD = 1.438) and write blogs (M =2.70, SD=1.601). This finding indicates that most respondents had the required Internet experience to use LMS. Students who use LMS are not very different from those using other social media because both applications require similar skill. Besides, LMS is normally used for students to gather information from their lecturers as well as friends from a variety of platforms in LMS.

Table 2: Mean and Standard Deviation for Internet Experience

Item	Mean	SD
I use the Internet for gathering information.	4.86	.465
I use social media (e.g., Facebook, Twitter, MySpace, etc.).	4.93	.334
I watch video via the Internet.	4.61	.631
I upload video to the Internet.	2.82	1.602



I download video from the Internet.	3.97	1.118
I use the Internet to send emails.	4.55	.720
I communicate using chat room.	3.94	1.354
I use the Internet to download software.	4.17	1.040
I use the Internet for online shopping.	2.66	1.438
I use the Internet to read blogs.	3.92	1.120
I use the Internet to write blogs.	2.70	1.601
I use the Internet to play online games.	3.30	1.607

SD: standard deviation; IE: Internet experience

5.2 Subjective Norm

Subjective norm is defined as the degree to which a user perceives that people who are important to him/her think s/he should use or reject the system [12]. Normally, university authorities, lecturers, and friends are among important people that encourage university students to use LMS. The findings of this study (see Table 3) show that the university (M = 4.17, SD= .610) and lecturers (M = 4.15,

SD = .659) seem to be the most important sources that encourage students to use LMS compared to their friends (M= 3.57, SD = 1.036). In fact, two items related support from friends also obtained a low mean score compared to others. This study indicates that most respondents felt that their friends did not play a significant role in using LMS as part of the learning process in universities.

Table 3: Mean and Standard Deviation Subjective Norm

Item	Mean	SD
My lecturers think that I should use PutraLMS.	3.96	.755
My friends' opinion is that I should use PutraLMS.	3.54	.949
The university supports using PutraLMS in my study.	4.17	.610
My lecturers encourage students who use PutraLMS.	4.15	.659
My friends encourage me to use PutraLMS.	3.57	1.036
My friends who have influence on my behavior think that I should use PutraLMS.	3.47	.964
People respect me if I use PutraLMS.	3.22	.943

SD: standard deviation; SN: subjective norm

5.3 Task-technology fit

Task technology fit is the ability of the LMS to support students in the range of learning activities they engage in, whilst accommodating the variety of student abilities [25]. In this study, Task-technology fit refers to the correspondence between tasks and functionality of PutraLMS in order to support students to engage when using it. 11 items were selected from various sources to

measure it. Table 4 reports the mean and standard deviation of the 11 items of task-technology fit. The respondents felt that PutraLMS with up-to-date information (M = 3.89, SD = .822) and output that seems to be just about exactly what they needed (M = 3.85, SD = .777) were among the two highest mean scores. Besides, the respondents also gave positive feedback on how PutraLMS helps them do their coursework (M = 3.83, SD = .843) and makes their task easy (M = 3.81, SD = .797).

Table 4. Task-Technology Fit

Item	Mean	SD
PutraLMS gives me a lot of help to do my coursework.	3.83	.843
Using PutraLMS makes my task easy.	3.81	.797
PutraLMS provides me with up-to-date information.	3.89	.822
PutraLMS provides output that seems to be just about exactly what I need.	3.85	.777
PutraLMS give me information I need in time.	3.72	.930
If I didn't use PutraLMS the quality of my learning would be poorer.	3.09	1.044
I recommend that my friends do their assignments using PutraLMS.	3.53	.930
PutraLMS helps me to accomplish my course work quickly.	3.48	.925
The features of PutraLMS will help me to learn better.	3.63	.847
I think learning by conventional teaching and learning methods could be replaced by PutraLMS.	3.43	.991
Overall, I like to do my task with PutraLMS.	3.47	.983



6. DISCUSSION

In recent years, a system that has been increasingly used in higher education is Learning Management System (LMS) [3, 4]. This system assists students to improve their quality of learning [14]. However, the results of some studies have revealed that utilization of LMS by students and lecturers is very limited [4]. Research has been conducted to investigate factors that prevent students from using it. There are many factors that are likely to affect the acceptance of an information system [10]. Among these factors are individual differences, system characteristics, and subjective norm [10,15,21,22].

The result of the present study indicated that the Internet experience of students was high. Most students seem to have sufficient internet experience and this could help them to use LMS without facing much problem. In particular, the items related to the social media use (e.g., Facebook, Twitter, MySpace, etc.) obtained the highest mean value. This could give an indication that if LMS were equipped with social media, students would be more interested to use it.

Subjective norm was another construct regarding LMS utilization that also obtained the highest mean. The students responded with highest mean score towards university and lecturer role in encouraging LMS utilization among students. The result of the present study also indicated that the construct of task-technology fit obtained a good mean value. In other words, in view of higher education students, matching learning activities with functionality of the PutraLMS is also important. The participants responded that PutraLMS as a system with up-to-date information helps them with their coursework and makes their task easy.

REFERENCES

- [1] Urbach, N., Smolnik, S., & Riempp, S. (2010). An empirical investigation of employee portal success. *Journal of Strategic Information Systems*. 19(3), 184-206.
- [2] Folden, R. W. (2012). General perspective in learning management systems. In R. Babo & A. Azevedo (Eds.), *Higher education institutions and learning management systems* (pp.1-27). Hershey, PA: Information Science Reference.
- [3] Dutta, A., Roy, R., & Seetharaman, P. (2013). Course management system adoption and usage: A process theoretic perspective. *Computers in Human Behavior*. 29(6): 2535–2545.
- [4] Islam, A. K. M. N. (2013) Investigating e-learning system usage outcomes in the university context, *Computers & Education*. 69, 387-399.
- [5] Piña, A.A. (2010). An overview of learning management systems. In Y. Kats (ed.). *Learning management system technologies and software solutions for online Teaching*. Hershey, PA: Information Science Reference., pp. 1-19.
- [6] Lam, L., Lo, J., Lee, J., & McNaught, C. (2012). Evaluations of online activities based on LMS logs. In Babo, R., & Azevedo, A. (eds.). *Higher education institutions and learning management systems* (pp. 75-93). Hershey, PA: Information Science Reference. pp. 75-93.
- [7] Hernandez, B., Montaner, T., Sese, F.J., & Urquizu, P. (2011). The role of social motivations in e-learning: How do they affect usage and success of ICT interactive tools? *Computers in Human Behavior*. 27(6): 2224-2232.
- [8] Dishaw, M.T., & D. M. Strong. D.M. (1999). Extending the technology acceptance model with task-technology fit constructs. *Information & Management*. 36(1), 9-21.
- [9] Davis, F.D. (1986). A Technology Acceptance Model for empirically testing new end-user Information Systems: Theory and results. Unpublished doctoral dissertation. Sloan School of Management, Massachusetts Institute of Technology, USA, 1986.
- [10] Davis, F. D., Bagozzi, R. P. & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*. 35(8), 982–1003.
- [11] Venkatesh, & Davis, F.D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*. 46(2), 186-204.
- [12] Venkatesh, V., & H. Bala. H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*. 39(2), 273-315.
- [13] Wang, W.T. & Wang, C-C. (2009). An empirical study of instructor adoption of web-based learning systems. *Computers Education*, 53(3), 761-774.
- [14] Teo, T. (2010). Examining the influence of subjective norm and facilitating conditions on the intention to use technology among pre-service teachers: A structural equation modeling of an extended technology acceptance model. *Asia Pacific Education Review*. 11(2), 253-262.
- [15] Pituch, K.A., & Lee, Y-K. (2006) The influence of system characteristics on e- learning use. *Computers & Education*. 47(2): 222-244.



- [16] Schumacher, P., & J. Morahan-Martin, J. (2001). Gender, Internet and computer attitudes and experiences. *Computers in Human Behavior*. 17(1): 95-110.
- [17] Tan, M., & Teo. T. S. H. (2000) Factors influencing the adoption of Internet banking. *Journal of the Association for Information Systems*. 1(Art. 5): 1-42.
- [18] Al-Busaidi, K.A., & Al-Shihi, H. (2012). Critical factors influencing instructors' acceptance and use of learning management systems. In R. Babo & A. Azevedo (eds.). *Higher education institutions and learning management systems*. Hershey, PA: Information Science Reference. pp. 116-140.
- [19] Park, E., & Pobil. A. P. D. (2013). Technology acceptance model for the use of tablet PCs. *Wireless Personal Communications*. 73(4), 1561-1572.
- [20] Goodhue, D. L. & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS Quarterly*. 19(2): 213-236.
- [21] Lin, W. H. & Wang. C. H. (2012). Antecedences to continued intentions of adopting e-learning system in blended learning instruction: A contingency framework based on models of information system success and task-technology fit. *Computers & Education*. 58(1), 88-99.
- [22] Kloppping, I. & McKinney, E. (2004) Extending the technology acceptance model and the task-technology fit model to consumer e-commerce. *Information Technology, Learning, and Performance Journal*. 22(1), 35-48.
- [23] Leech, N. L. ., Barrett, K. C. & Morgan, G. A. (2008). *SPSS for intermediate Statistics: Use and interpretation*. New York: Routledge.
- [24] Venkatesh, V., Thong, J. Y. L. & Xu. X. (2012) Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*. 36(1), 157-178.
- [25] McGill, T. J. & Klobas, J. E. (2009). A task-technology fit view of learning management system impact. *Computers & Education*. 52(2): 496-508.
- [26] Chang, H. H. (2010) Task-technology fit and user acceptance of online auction. *International Journal of Human-Computer Studies*. 68(1-2): 69-89.
- [27] Igarria, M., Guimaraes, T., & Davis, G. B. (1995). Testing the determinants of microcomputer usage via a structural equation model. *Journal of Management Information Systems*, 11(4), 87-114.