

The Effect of Instructors' Quality and Perception Antecedents on Students' Behavior in E-learning

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Abstract. Higher education institutions all over the world face great pressure to improve the value in its activities especially with the introduction of new technologies. The objective of this study is to understand LMS behavioral intention to use among students. Specifically, this study aims to adapt 3-TUM and incorporates instructor quality as a factor that influences students' behavioral intention to use LMS. An empirical study was conducted through an online survey. Data collected from 119 students were analyzed using structural equation modeling. This study concludes that the applied model was shown to be fairly useful in the context of the study of LMS use. The results from the study reveal two major findings. First, students' perceived satisfaction plays an important part in predicting students' behavioral intention in the context of LMS. Secondly, instructor quality was a significant predictor in understanding students' perceived usefulness. The study suggests that in the context of LMS, there is a need to utilize attribute-specific perception antecedents to obtain meaningful explanations.

Keywords: E-Learning, Instructor Quality, Satisfaction

INTRODUCTION

Sustainable investment in human capital is a crucial factor toward a sustainable development for a country. This perspective has leveraged education to become the primary determinants of standard of living, employment status and also the economic and industrial development. Higher education institutions all over the world face great pressure to improve the value in its activities. Besides that, education institutions are also required to provide and maintain a quality learning environment. As a result, most of the higher education institutions are struggling to enhance the professional experience and skills of their personnel in order to utilize the new technologies in their teaching activities in an efficient way [1]. Against this background, research studies which addressed the quality issues in e-learning are gaining importance.

Most research to date on student use of e-learning has focused on the relationship between e-learning quality and student satisfaction with the system. However, there is an increasing body of research findings which demonstrated that it is not so much the e-

learning itself but the way it is used by the instructor that produces benefits for students [2]. Because the particular implementation of e-learning for a given course depends on the instructor, the instructor's quality in providing prompt and reflective feedback and supporting students in learning community is also likely to influence the adoption of the e-learning among students. Furthermore, in Educause Research Bulletin, [3] suggested that poor student commitment with LMS may contribute to lack of educational innovation.

The higher education service quality in Malaysia has gained tremendous attention from academics due to the formulation of the National Higher Educational Strategy Plan (PSPTN) in 2007. This attention has since increased especially with the utilization of e-learning in higher education. Furthermore, e-learning has been identified as one of the Critical Agenda Projects (CAPs) and a Key Result Area (KRA) of the Ministry of Higher Education (MOHE) [4].

Instructor quality has been included alongside other quality factors in prior researches [5, 6]. However, the metrics of instructor quality differs according to studies. One similar metric which occurs in both mentioned studies is responsiveness. Hence, this study defines instructor quality as the instructors' ability to provide prompt and reflective feedback and also their ability to support students in learning community. This definition is also in line with the definition of service quality mentioned by [7] where service quality refers to the ability of providing high quality service to the customer. Since LMS provides numerous services regarding the course to students, therefore the stated definition is also applicable to LMS.

The objectives of this study were twofold. The first objective is to collect results to help understand whether LMS perceived usefulness and LMS satisfaction predict students' behavioural intention to use LMS. The second objective is to understand the direct or indirect relationship between instructors' quality with students' behavioural intention in using LMS.

LITERATURE REVIEW

Instructors now have to give a second thought to the very nature of learning. They play important role in shaping learners' behavior in the e-learning course, and thus their quality and attitude may affect students' behavior in e-learning environment [8]. Since online learning is self-directed learning that lacks physical interactions, arguments on how to enhance quality have focused on the interaction quality. Furthermore, according to [9, 10], instructors that can respond to students' needs on a timely basis and instructors with positive attitude towards e-learning will encourage the students to perceive the e-learning as satisfactory and useful. Identifying the expectations of students or their perceptions of the instructors quality in this new learning environment can provide not only instructors but also stakeholders with valuable feedback.

Perceived usefulness is users' perception of the expected benefits of LMS use. [11] defined perceived usefulness as the degree to which a person believes that using a particular system would enhance his or her job performance. Meanwhile, perceived satisfaction is defined as user's affective state that is the emotional reaction to a product or a service experience by [12]. In this research, the LMS satisfaction and LMS perceived usefulness represent the affective and cognitive perception antecedents.

This study applies the 3-TUM [13] in order to understand how students use the LMS as a supplement to their face-to-face learning process. The concept of 3-TUM argued that individual attitudes toward information technology can be divided into three different tiers: the tier of individual characteristics and/or system quality, the affective and/or cognitive tier, and finally the behavioral intention tier. This concept also proposed that the first tier of individual characteristics and/or system quality can influence the second tier. Similarly, the second tier of affective and/or cognitive tier will continue to influence the third tier which is the behavioral intention tier. In addition, previous research have also indicated that positive and significant relationship exists between perceived usefulness and students' satisfaction in e-learning environment [9, 14]. From the existing literature, in the current study, the following hypotheses were proposed:

- H₁: LMS satisfaction will positively affect students' behavioral intention in using LMS.
H₂: LMS perceived usefulness will positively affect students' behavioral intention in using LMS.
H₃: Instructor quality will positively affect LMS perceived usefulness.
H₄: Instructor quality will positively affect LMS satisfaction.
H₅: LMS perceived usefulness will positively affect LMS satisfaction.

METHODOLOGY & FINDINGS

The demographics of the respondents were derived from descriptive analysis. Participants were 119 students (46 males and 73 females) who voluntarily participated in this study at an academic institution in Selangor. Females (61.3%) outnumber males (38.7%) in this study. This scenario somewhat reflects the gender ratio of undergraduates for most academic institutions in Malaysia. Since there was no list available, non-probability convenient sampling method was utilized. This sample size is considered adequate and satisfactory in conducting SEM since the prerequisite sample size is 100 to 150 observations [15, 16].

TABLE 1. Assessment of items. Note: IQ –Instructor Quality, PU – perceived usefulness, SA – satisfaction, and ITU – behavior intention to use.

Item	Measure	Mean	Factor loading	Cronbach Alpha	Average Variance Extracted (AVE)
IQ1	The instructor promptly responds to learners' questions through the LMS.	3.71	.890		
IQ2	The instructor is good at communication with learners through the LMS	3.97	.879	.869	.884
PU1	Using the LMS improves my learning performance	3.89	.835		
PU2	Using the LMS enhances my learning effectiveness	4.02	.873	.919	.869
PU3	Using the LMS gives me greater control over learning	4.03	.899		
SA1	I am satisfied with the performance of LMS	4.03	.866		
SA2	I am pleased with the experience of using LMS	4.07	.907	.860	.886
ITU1	I will use the LMS on regular basis in the future	4.11	.916		
ITU2	I will frequently use the LMS in future	4.13	.913	.902	.914

TABLE 2. Goodness of Fit Measures.

Fit indices	Result	Acceptable values
chi square/df	1.223	≤ 3.0
GFI	0.953	≥ 0.90
AGFI	0.905	≥ 0.80
NFI	0.966	≥ 0.90
CFI	0.994	≥ 0.90
RMSEA	0.044	≤ 0.08

The sample was selected among students who have used LMS as a supplement to face-to-face learning for at least one semester (fourteen weeks). More than half of the respondents (52.1%) were more than 20 years old. All participants needed to answer a questionnaire that includes demographic information combined with four different

components (instructor quality, perceived usefulness, perceived satisfaction and continued intention to use LMS). The questionnaire with a covering letter was distributed online to subjects and their responses were guaranteed confidentiality. The rate of response was 47.5% and questionnaires with missing responses were eliminated.

Participants were requested to answer the questionnaire on a 7-point Likert-type scale in which (1) mean strongly disagree and (7) mean strongly agree. To minimize the problem of reducing validity, the neutral response alternative was included. The number (4) provided a neutral response for the scale as follows “neither agree nor disagree”. The instrument items were adapted from published literature by [10, 11, 17 and 18].

Before multivariate data analysis could be conducted, some assumptions of multivariate data analysis was tested. The size of sample, scale of variables, their multicollinearity, their multivariate normal distribution and outliers are the assumptions that need to be fulfilled [15]. Furthermore, the correlation among the independent variables is less than 0.9 which suggest no multicollinearity problem [15]. As far as multivariate normal distribution is concerned, the skewness and kurtosis ($<\pm 1$) and the standardized residual ($<\pm 2.5$) indicated that there are no serious indications that it is violated [15]. Therefore, it can be suggested that the basic assumptions of multivariate analysis were fulfilled.

Based on the means of descriptive statistic analysis, the averages of all the constructs were greater than 3.5 out of 7 (see Table 1). Hence the responds indicate that most of the participants neither agree nor disagree towards LMS use. In addition, participants responded negatively to instructor quality besides perceiving the LMS as not helping their learning performance. Confirmatory Factor Analysis (CFA) was used to test whether the constructs possessed sufficient validity and reliability. All the Cronbach reliability coefficients were higher than the minimum cut off score of 0.7 [19]. As shown in Table 1, all factor loadings were significant at $p<0.05$. Table 1 also shows that the average Variance Extracted (AVE) exceeds 0.5. Therefore, all measures shows adequate reliability.

The ratio of the chi-square value to degrees of freedom ($\chi^2/d.f.$), goodness of fit (GFI), root mean square error of approximation (RMSEA), adjusted GFI (AGFI), normed fit index (NFI), and the comparative fit index (CFI) are six measures that were used to estimate the measurement model fit. The goodness of model fit to this research measurement model is shown in Table 2 and they are within the acceptable limits as recommended by the literature [20]. Therefore, it can be suggested that the measurement model has a good fit with the data collected.

DISCUSSION

The path significance of each hypothesis association in the research model and the variance explained (R^2) by each path were examined. Results were as follows:

The first aim of this study was to estimate the effect of LMS perceived usefulness and LMS satisfaction on students' behavioural intention to use LMS. LMS satisfaction significantly influenced students' behavioural intention to use LMS ($\beta = 0.641$, $t = 5.133$), so H_1 was supported. This result is consistent with [21]. However, LMS perceived usefulness did not have a significant effect on students' behavioural intention to use LMS ($\beta = 0.103$, $t = 0.926$), so H_2 was not supported. Although prior studies by [9]

have found that perceived usefulness has a direct impact on intention to use, the finding of this study is however, inconsistent with the previous findings. A reason for the inconsistency can be explained through the attitude of the students; most of the students are using the LMS as supplement to their face-to-face learning process, thus they may have not developed the idea of the usefulness of the LMS system that they are using. In addition, LMS satisfaction explained 51% of the variance in students' behavioural intention to use LMS.

The effect of instructor quality on LMS perceived usefulness and LMS satisfaction. Instructor quality significantly influenced LMS perceived usefulness ($\beta = 0.615$, $t = 6.193$), so H_3 was supported. This result is consistent with the research by [5, 9, and 22] where instructor quality was positively related to students' perceived usefulness. The study found that perceived usefulness of LMS increases when students find their instructors promptly responds to their questions while utilizing the LMS. Similar to findings by [5, 9], instructor quality was not significantly related to LMS satisfaction ($\beta = 0.302$, $t = 2.687$), so H_4 was not supported. This finding is in contrast with finding by [23] where instructor quality was positively related to perceived satisfaction. The finding implies that most students utilizing the LMS were not satisfied with the quality of the instructors. In addition, instructor quality explained 38% of the variance in LMS perceived usefulness.

The effect of LMS satisfaction and LMS perceived usefulness. LMS perceived usefulness significantly influenced LMS satisfaction ($\beta = 0.458$, $t = 4.134$), so H_5 was supported. This finding is in line with findings by [9, 14]. The finding implies that LMS that provide useful interaction functions on a personal level contribute more to users' satisfaction level. In addition, LMS perceived usefulness explained 47% of the variance in LMS satisfaction.

CONCLUSION

The purpose of the study was to examine the impact of LMS perceived usefulness and LMS satisfaction on students' intention to use LMS. This study concludes that the applied model was shown to be fairly useful in the context of the study of LMS use. The findings show that only LMS satisfaction affects students' intention to use LMS. However, LMS perceived usefulness do affect students' intention to use LMS through LMS satisfaction. Consequently, this shows that in order to increase the usage of LMS among students, special attention need to address to the both the perception antecedents. For academics, studies of perceived usefulness in e-learning context only focus on the overall effectiveness of an e-learning system when discussing about its perceived usefulness. Generally, the effectiveness of an information system is based on the performance of individuals. However, the numerous possibilities and functions offered by e-learning differs it from other type of information system. Therefore, individual performance and their perceived effectiveness while using e-learning also differs.

When LMS is used in academic context as a supplement to face-to-face learning then exploration of students' satisfaction is worthwhile and more important than study of a mandatory usage. As a perception antecedent, LMS satisfaction could be further specified into attribute-specific satisfactions that affect e-learning usage rather than just utilizing

the common overall cumulative satisfaction. This will be more beneficial in term of providing more explanations towards satisfaction.

The second purpose of this study was to test the impact of instructor quality on students who were using LMS in an academic institution in Malaysia. This study concludes that instructor quality is a factor that influences students' intention to use LMS. This implies that for LMS to be successfully utilized, the instructor should consider being actively involved in the LMS environment. Instructors should demonstrate good attitude toward the use of technology and make sure that they themselves were trained and experienced enough with LMS before adopting it in their courses. Likewise, instructors need to make sure that students were guided through active interaction in online communities. Finally, these findings may enable the stakeholders of LMS to think seriously on these factors that will affect students' intention to use LMS in future.

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