WCLTA 2013

Investigating Students’ Satisfaction And Continuance Intention Toward E-Learning: An Extension Of The Expectation–Confirmation Model

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Abstract

E-learning has received a considerably research attention recently because it becomes part of learning patterns for many tertiary educations. Recently, Lee (2010) examined the users’ satisfaction (SAT) with, and continuance intention (CI) of e-learning based on the expectation-confirmation model (ECM), and reported that the ECM factor of post-adoption expectation (PAE) (i.e., perceived usefulness of e-learning) can be explained by TAM and TPB models. This paper examines the ECM factor of PAE be explained by students’ post-adoption experiences in e-learning. Four key quality assurance factors (i.e., learning process, tutor interaction, peer interaction, and course design) are proposed to expand the understanding of students’ experience in e-learning. The proposed research model is validated empirically using survey method including a sample of 100 university students in Hong Kong. Structural equation modelling using Smart PLS 2.0 is conducted to examine the research model. The results demonstrate that students’ confirmation of using e-learning has a direct impact to our proposed four factors. Of these four factors, learning process and course design are the only two factors that have a direct influence on both SAT and CI. It is, however, interesting to note that tutor interaction and peer interaction do not play a role to predict students’ SAT with and CI of e-learning. The academic and practical implications of this study are discussed.

Keywords: E-learning, continuance intention, expectation-confirmation model, post-adoption expectation;

1. Introduction

During the last decade, information and communication technologies (ICT) have enriched the teaching and learning experiences, and have been widely accepted by students and course instructors. Due to the development of e-learning technology, universities have paid great efforts to promote the active use of e-learning among students and lecturers.

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Large sum of money has also been devoted by many universities to implement better e-learning systems that could encourage the usage by students. Lee (2010) point out that, although the initial acceptance of e-learning by students is vital in achieving e-learning success, actual success still depends largely on learner loyalty (i.e., subsequent continued usage). Previous studies have adopted various theories to predict and explain e-learning continuance intention, such as Technology Acceptance Model, and Unified Theory of Acceptance and Use. These studies confirmed that students’ perception of the benefits gained through the adoption of e-learning is crucial in determining continued usage. Following this stream of directive research, Lee (2010) adopted the Expectation-Confirmation Model (ECM) to further explore how students’ confirmation of expectation about e-learning impacts on their post-adoption expectation (PAE), and subsequently how both of them impact on satisfaction and continuance intention. Lee’s study utilized the TAM and TPB models to explain students’ PAE in terms of perceived ease of use and usefulness.

Grounded from Lee’s (2010) work, the current study aims to re-investigate the influencing factors of e-learning satisfaction and continuance intention by treating the measurement of PAE based on students’ e-learning experiences. Although the application of e-learning at universities has motivated numerous studies, there still lacks of clear understanding about how students’ various e-learning experiences could influence their satisfaction and continuance intention. The study of Paechter et al. (2010) report seven key measurement items that capture students’ e-learning experiences: structure, tutor expertise, tutor support, flexibility, motivation, knowledge communication, and relation communication. Structure refers to learning materials that are well-structured, and it is essential to successful course design (Brophy, 2000). Tutor expertise and tutor support are important during tutor interaction in order to assist students to engage in learning activities (Johnson, Hornik, & Salas, 2008). Flexibility and motivation are key characteristics of e-learning process as they determine the pace and self-regulation during the process (Narciss, Proske, & Koerndle, 2007). Knowledge and relation communication are key aspects of interaction among peer students, and they benefit students with a cohesive and positive e-learning environment (Jucks, Paechter, & Tatar, 2003).

Based on above, this study synthesizes the ECM to investigate e-learning satisfaction and continuance intention, and proposes the seven aforementioned measurements of e-learning experience be represented by the following four factors of PAE: learning process, tutor interaction, peer interaction, and course design. We further explain the latter grouping process below. Relying on ECM, we develop a framework that explores the process through which the confirmation of expectation enhances the four factors of PAE, and subsequently how they both further affect e-learning satisfaction and continuance intention.

2. Research Objective and Research Hypotheses

The purpose of this research was to investigate and explain students’ satisfaction and continuance intention towards e-learning system using ECM. The specific research objectives are: 1) to exam the relationship between confirmation and the four factors of e-learning PAE; 2) to exam the relationship between the four factors of e-learning PAE and satisfaction and continuance intention; 3) to exam the relationship between confirmation and satisfaction towards e-learning. Figure 1 reviews the proposed research model.

According to the ECM, users’ confirmation of expectation has a positive effect on the PAE of IT (Bhattacherjee, 2001). Therefore, it is reasonable to argue that, after students have adopted the e-learning system, their confirmation of expectations would positively influence their perceptions of e-learning experiences in terms of learning process, interaction with tutor, interaction with peers, and course design. Therefore, we propose that confirmation positively influences students’ perception of learning process (H1), tutor interaction (H2), peer interaction (H3), and course design (H4), respectively.

Based on the ECM, if users have a higher level perception of their post-adoption expectations, they would also have a higher level of satisfaction and continuance intention (Bhattacherjee, 2001). Therefore, we propose that respective students’ perception of learning process (H5), tutor interaction (H7), peer interaction (H9), and course design (H11) would have a positively influence on e-learning satisfaction. Similarly, respective students’ perception of learning process (H6), tutor interaction (H8), peer interaction (H10), and course design (H12) would have a positively influence on e-learning continuance intention.

The confirmation of expectations refers to the degree to which students obtained their expected benefits through the use of e-learning. Studies indicated that confirmation leads to a positive effect on users’ satisfaction, and satisfaction further leads to continuance intention (Lee, 2010). Therefore, we propose that students’ confirmation of
expectation positively influences satisfaction (H13), and students’ satisfaction positively influences continuance intention (H14).

3. Research Methodology

3.1. Research design

We empirically examined our research model using a survey method. We adopted validated measurements from the work of Lee (2010) to measure confirmation (3 items), satisfaction (3 items), and continuance intention (3 items). The e-learning PAE is based on the original work of Paechter et al. (2010) in students’ e-learning experiences. We studied and applied the within grouping concept and group the aforementioned seven measurement items into the following four factors: learning process (2 items: flexibility and motivation), tutor interaction (2 items: tutor expertise and tutor support), peer interaction (2 items: knowledge communication and relation communication), and course design (1 item: course structure). All these measurement items are developed and measured with a five-point Likert scale.

3.2. Research sample

The respondents of this study were university students in Hong Kong. We randomly distributed our questionnaires to 250 university students who have experience in using e-learning. After discarding incomplete questionnaires, we collected 100 usable ones. Among the 100 respondents, 37% were male and 63% were female. Most of the respondents were aged between 19 and 24 (75%), while 17% were aged below 18, and 8% were aged above 30.

3.3. Data analysis

This study adopted Structural Equation Modelling (SEM) software Partial Least Squares (PLS) for the data analysis to systematically examine the measurement and structural model. PLS is suitable for this study because it makes minimal demands on sample size and normal distribution. (Chin, 1998). We used a two-step modelling method in this study by firstly assessing the measurement model and then testing the structural model.

4. Findings and Discussion

We examined the measurement model by assessing its convergent validity and discriminate validity following the criteria suggested by Chin (1998). The measurement model demonstrates high convergent validity since all factor loadings are above 0.7 (ranging from 0.79-0.93). All AVEs are above 0.5 (ranging from 0.71-0.87), and all composite reliabilities (CRs) are above 0.7 (ranging from 0.83-0.93). The measurement model also demonstrates good discriminant validity since the square root of the AVE for each construct was larger than its correlation with other factors.

We then assessed the structural model by examining the proposed hypotheses. Figure 1 shows the results of the hypothesis testing, including the estimated path coefficients and the variance explained (R² value) of the dependent variables. All relationships between confirmation and the four factors of PAE are significant, thus validating H1-H4. Among the four factors of PAE, students’ perception of learning process and course design significantly influence satisfaction and continuance intention, therefore H5, H6, H11, and H12 are supported. Tutor interaction and peer interaction does not predict satisfaction and continuance intention, thus rejecting H7, H8, H9, and H10. Moreover, the relationship between confirmation, satisfaction, and continuance intention are significant, suggesting that H13 and H14 are supported. The overall explanatory power of the model had an R² of 62% of e-learning satisfaction and an R² of 56% of continuance intention.
The results of this study show that students’ confirmation of expectation is significant in predicting their e-learning PAE in terms of learning process, tutor interaction, peer interaction, and course design. Confirmation also directly predicts students’ satisfaction toward e-learning. Therefore, efforts should be paid to educate students on how to effectively use the e-learning system in order to maximize their confirmation of expectation, and further to increase their satisfaction.

Among the four factors of PAE, students’ perception of learning process has the most significant impact on satisfaction and continuance intention. Therefore, e-learning practitioners should provide sufficient flexibility in the e-learning process and ensure that students can decide on their own pace of study. Course design is the only secondary determinant of satisfaction and continuance intention. This finding suggests that e-learning practitioners should design a clear and reasonable e-learning course structure, and provide coherent and well-structured course materials in the e-learning system. Opposite to our hypotheses, the impacts of tutor interaction and peer interaction on e-learning satisfaction and continuance intention are not significant. One possible explanation may be that, in many universities, students’ use of e-learning mainly focuses on obtaining learning materials but not on communication and collaboration (Njenga & Fourie, 2010). More efforts are needed to promote the communication in e-learning systems and facilitate the interaction between students and tutors.

5. Conclusion

The motivation for this study was to examine empirically the antecedents of students’ satisfaction and continuance intention towards e-learning based on the Expectation-Confirmation Model (ECM). We expanded the ECM by using four quality assurance factors (learning process, tutor interaction, peer interaction, and course design) to measure students’ post-adoption expectation (PAE) of e-learning. Our study seeks to gain a deeper understanding of how students’ confirmation of expectation influences their perceptions of four PAE factors, and subsequently how both factors further affect their satisfaction and continuance intention. The results confirm that confirmation is positively related to both PAE factors and satisfaction in using e-learning. Furthermore, two PAE factors (learning process and course design) significantly influence satisfaction and continuance intention. In conclusion, e-learning practitioners should focus on maximizing students’ confirmation of expectations, as well as facilitating their PAE by improving the design of learning process and e-learning courses.
References


