International Journal of Business and Management; Vol. 11, No. 2; 2016
ISSN 1833-3850 E-ISSN 1833-8119
Published by Canadian Center of Science and Education

Modeling Factors Affecting Student's Usage Behaviour of E-Learning Systems in Lebanon

Ra'ed (Moh'd Taisir) Masa'deh[1], Ali Tarhini[1], Ashraf Bany Mohammed[1] & Mahmoud Maqableh[1]

[1] Management Information Systems, Business School, The University of Jordan, Amman, Jordan

Correspondence: Mahmoud Maqableh, Management Information Systems, Business School, The University of Jordan, Amman, Jordan. E-mail: mmaqableh@gmail.com

Received: December 17, 2015 Accepted: December 28, 2015 Online Published: January 23, 2016

doi:10.5539/ijbm.v11n2p299 URL: http://dx.doi.org/10.5539/ijbm.v11n2p299

Abstract

This study seeks to explore the factors that influence students' usage behaviour of e-learning systems. Based on the strong theoretical foundation of the Unified Theory of Acceptance and Use of Technology (UTAUT) and using structural equation modeling (SEM) via AMOS 21.0, this research paper examines the impact of performance expectancy, effort expectancy, hedonic motivation, habit, social influence, and trust on student's behavioural intention, which is later examined along with facilitating conditions on student's usage behaviour of e-learning systems. Data was collected from students at two universities in Beirut (capital of Lebanon) using a cross-sectional questionnaire survey between January and March 2015. The results revealed direct positive effect of performance expectancy, hedonic motivation, habit, and trust on student's behavioural intention to use e-learning explaining around 71% of overall behavioural intention. Meanwhile, behavioural intention and facilitating conditions accounted for 40% with strong positive effects on student's usage behviour of e-learning systems. However, both effort expectancy and social influence did not impact student's behavioural intention.

Keywords: adoption, behavioral intention, developing countries, e-learning, usage behaviour

1. Introduction

We are now in the time of e-learning, as it is necessary for each educational institution to have an online learning web site or center, and that's so important so everybody can learn anytime and anywhere (Peacock, 2012; Rostaminezhad et al., 2013; Hubackova, 2015). Wong and Karin (2015) stated that corporate e-learning in its broad term implies the use of online training to support individual goals along with the enterprise goals. According to the US digital year report, individuals' overall time spent online was among four different online contents including portals, social networking, web-based email's market, and entertainment category and the second largest share of time spent was on SNS Maqableh et al. (2015a). It is a way of coping with external changes that make it necessary for companies to offer and facilitate an educational environment. It combines professional progress aside to the acquisition of new skills and competencies. As the definition suggests, employing corporate e-learning can offer education with reduced costs and zero travel time. It tends to be up-to-date and quite flexible to all employees. On the other hand, corporate e-leaning can have its own limitations; some of which are: lack of technical literacy and lack of social interaction during online courses. Dorobat (2014) stated that e-learning is an online system that adapts with the traditional learning components; planning, specific content and methodology, interaction, support and assessment. The e-learning system helps the learning process to be flexible. However, blended learning (combined, hybrid, integrative) is achieving the learning objectives through the applications of specific technologies in order to customize the act of learning and to transfer knowledge and skills to the right person at the right time. In addition, Tarhini et al. (2013a) examined different Web 2.0 technologies and web-enabled learning platforms to generate technology-rich learning environments such as exploiting the blended learning technologies and applications. Furthermore, they found such technologies are digital, making them highly adaptable and integrative; globally ubiquitous, making them accessible to anyone and anywhere since an internet connection exists; low cost or free, making them accessible to anyone with a computer or mobile device; and could be used in an academic setting. However, Carbonell et al. (2013) who interviewed twelve people and collected data regarding an online course evaluation form from 82 students in order to describe how a hybrid, blended, or online course was created and how the instructor and students perceived it; found that hybrid, blended, or online courses differ in the amount of integration between

offline and online activities, and the change process from offline to hybrid, blended, or online problem-based learning courses have to be cautiously managed.

According to Barker (2006), McGrath (2012) and Lin et al. (2014), e-learning strategy is superior to the traditional learning methods with respect to students' motivation. The advantages of e-learning strategy: study flexibility, broader accessibility, no time and space limitation, individual approach, use of multimedia, and more active teaching style Maqableh et al. (2015b). According to Valsamidis et al. (2014), there are many types of e-learning which have to be commensurate with the required type of education; whether it is for individuals, schools, universities, or institutions in general. With the aim of education or training, e-learning can be utilized to achieve the goals of traditional education with less time, effort, and cost. However, some of the limitations and constraints that face the adoption and use of e-learning include the lack of social interaction among learners and teachers, the disparity of trust between the different age groups that represent the learners and teachers, and the problem of assessing the accuracy of the learning process at the end of the educational curricula. In fact, many factors control the change from traditional systems to e-learning systems and students usage behavior of these systems. Some important models and theories were development throughout the literature to model and explain the dynamics of technology adoption and use. Technology Acceptance Model (TAM) (Davis 1989) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) are most widely and cited theories that were developed based on Theory of Reasoned Action (TRA) and theory of planned behavior (Fishbein & Ajzen, 1975). Utilizing and extending UTAUT2, this research will explore factors affecting students' e-learning systems usage behaviour in Lebanon.

The rest of the paper is organized as following: next section present the literature review, research model is presented in section 3 while the research methodology is presented in section 4. Section 5 presents the research results and empirical analysis whereas section 6 provides the discussion as well as the research summary and concludes the paper with future research perspectives.

2. Literature Review

Songkram (2015) developed an e-learning system to enhance cognitive skills for higher education students categorized in three major disciplines including health science (problem solving, systematic thinking, analytical thinking, and scientific process), science and technology (problem solving, analytical thinking, creative thinking, and critical thinking), and social sciences and humanities (problem solving, analytical thinking, creative thinking, and applicative thinking). The e-learning system is comprised of two sub systems: e-Learning system in Blended Learning Environment (BLE) that combines the benefit of classroom and online learning; and e-Learning in Virtual Learning Environment (VLE) that focuses on the self-paced learning. Both systems were tested by 240 higher education students. In order to enhance cognitive skills for learners in higher education, the researchers found that an e-learning system should consist of four core elements including input, process, output, and feedback. Input which contains elements including learner's role, instructor's role, learning environment, learning resources, and motivations; process which is the process of instruction including analytical thinking process, creative thinking process, scientific thinking process, systematic thinking process, and applicative thinking; result which is cognitive skills; and feedback which is the evaluation of the system.

Truskolaska et al. (2015) made an experiment on a group of 20 participants of an on-line course of the fourth year of pedagogy (not full-time) conducted in the form of e-learning at the polish university. The researchers argued that work of lecturers go further than the preparation of materials and the course itself. Lecturers have the ability to individualize the work and perceive the educational needs of each student. However, the crucial objective of the study was to find the factors determining the effectiveness of e-learning courses and learning expectations. The researchers found that the use of e-learning allows people who work, live abroad, have a family, or come from a small village, near which there is no college education to study. Also, the respondents preferred e-learning form of education due to the opportunity to study in any hours, low education costs, and the comfort of learning at home. However, the most frequently drawback of this form of education was the lack of direct contact with the teacher and other participants. The most preferred forms are such materials as articles, lectures in the audio form, tests, and illustrations and links to websites. The respondents were mostly satisfied with the way the message was sent, which they assessed as a clear, precise and understandable. In addition, participants appreciated the regularity of the information provided and the opportunity to participate in forum discussions. However, most fears of the participants before taking the course focused on potential technical failures and doubts associated with personal competences as using computers and e-learning platform.

According to Mitakos et al. (2014), people learn from formal and informal processes, and e-learning tends to support the learning process through the use of IT. Those processes are classified and have communication tools

that allow self assessment. E-learning contains the process of standardization that represents the process of content conversion, and meta analysis that facilitates data search and data identification process especially when information value is high. Learning management systems is a software used to support learning processes through key features of the systems. The availability of tools in open source or learner and teacher made it the best institution's choice. Also, cloud computing model designed to help teacher to upload and modify material anytime and anywhere and students to reach the material easily. The researchers have summarized the benefits of e-learning such as learners and teachers feel comfortable because of the flexibility of time and space they focus on learning process, monitoring process is easier because of the control center, costs are low and learning applications are available in appropriate prices.

By applying Quality Function Deployment (QFD) method within the University of Petrosani to the students that use the CourseMill eLearning system, Leba et al. (2013) aimed to find the optimum between user's requests and the actual technical sources of the current e-learning employed system. In order to achieve the research aim, the researchers applied the QFD method which measures the accomplishment of the computed global index of the method, called offset; which in turn offers the optimum between requests and resources. Leba et al. (2013) found that there is a relationship between the offsets requirements and the quality characteristics, and the optimum between them is provided. The simulated results have shown which requirements need better accomplishment in order to achieve the optimal degree.

Rostaminezhad et al. (2013) aimed to identify the theories that explain the success rate of e-learners. They used a quantitative content analysis by reviewing the findings of 24 major studies in this field in Iran University of Science and Technology (IUST) from 223 e-learners at IUST e-learning center. IUST integrated the learning in their education and started to look for the answer of why student dropout courses as they noticed that e-learner dropout rate is higher than traditional student. Rostaminezhad et al. (2013) found that motivational theories; self-regulated learning, and interaction were the most important explanatory theories for e-learner success. Results reveled that there were relationship between self-regulation and e-learner dropout, and persistence e-learner had significantly high self-regulatory score than the dropout group. The researchers concluded that IUST should develop self-regulatory skills of e-learner and insure these abilities declared in their online system.

Tran (2013) exploited the unfolding model that serves as a beginner's guide to program evaluation for distance and e−learning courses. The unfolding model consists of four elements as scientific evidence, relevant/cost‐benefit, underlying values, and unintended consequences. Also, the model is intended to be dynamic and will continue to develop in response to new technologies. Al-Arimia (2014) discussed the distance learning and its relation to e-learning, and the factors that affect the usage of e-learning systems and how to handle them. Also, the researcher explained the term of blended learning which is used widely in the business sector where it generally refers to cost-effective online training. She stated that e-learning is naturally suited to distance learning and flexible learning, and can be used in conjunction with face-to-face teaching in which case the term blended learning is usually used. Distance learning or distance education is a field of education that spotlights the pedagogy/andragogy, technology, and instructional system design that are well incorporated in delivering education to student teacher, and in turn students may well communicate asynchronously and synchronously.

Cação (2014) suggested that there are certain indicators for assessing corporate e-learning in large scale companies. The study related to this research included semi-structured interviews with prime companies of several sectors such as banking, insurance, retail, energy, telecommunications, pharmaceuticals, food and beverage, and transports. The researcher stated that each company develops its own strategy, procedures, and practices, to protect them from the outside in order to use them as a competitive advantage. When the time comes to assess how adequate their approaches are, they need practical tools that can help them improve, and this case is also true in corporate e-learning. The researcher found that there is several critical indicators affecting maturity in corporate e-learning and can be identified as: strategy, structure, experience, learning design, learning products, learning process, and people. Each of these indicators can be evaluated to assess the overall maturity in corporate e-learning when it comes to large scale companies. These indicators of corporate maturity can later on help companies diagnose their e-learning's maturity and design strategies, so that they can improve their performance in this respect.

Wong and Karin (2015) discussed the overall definition of corporate e-learning and then mentioned some benefits of it by mentioning the case of 'Tech Mahindra' company and its experience with corporate e-learning. Tech Mahindra (TM); a multi-national IT company based in India has found a way to utilize corporate e-leaning among its different assortments. TM offers technical solutions and consultancy to many sectors including: banking, retail, transportation, media, and others. It incubates more than 95,000 employees across 51 different countries. To employ corporate e-learning, TM has teamed up with GlobalNxt University. The partnership

included developing customized training courses for the employees of TM. The courses ranged from business administration to information technology. The modules of GlobalNxt University were delivered on a span of 5 months. Each module included a section for reading, another for discussion, and one last section dedicated for getting the module's project done. The main issue facing TM was the fact that most employees have been away from studying for many years and took time to reboot. The benefits of this program were highlighted in enhancing employees' value, evoking employees' learning skills, enhancing hands-on experiences, and increasing job satisfaction.

Tarhini et al. (2013a) empirically validated an extended Technology Acceptance Model (TAM) to include social norms and quality of work life constructs in the Lebanese context. The researchers collected data from 569 undergraduate and postgraduate students studying in Lebanon via questionnaire, and performed structural equation modeling technique based on AMOS methods. They found that perceived usefulness, perceived ease of use, social norms and quality of work life were significant determinants of students' behavioral intention. Consequently, e-learning implementation is not just a technological solution, but also a process of several factors of social and behavioral ones. Based on an extended Technology Acceptance Model (TAM), Tarhini et al. (2014a) examined the factors affecting students' behavioral intention to adopt e-learning technology, and explored the moderating effect of age and gender on the relationships among the determinants affecting e-learning acceptance. 604 students who used a Web-based learning system at Brunel University in England were surveyed. Also, by using structural equation modeling technique based on AMOS software, the researchers found that perceived ease of use, perceived usefulness, social norm, and self-efficacy were critical factors for students' behavioral intention to use e-learning, with the effect of perceived usefulness found to have the highest magnitude among the main determinants. They also found that age moderates the effect of perceived ease of use, perceived usefulness, and social norm on behavioral intention and that gender moderates the effect of perceived ease of use and social norm on behavioral intention. Nevertheless, there was not a significant moderating effect of age on the relationship between social norm and behavioral intention; and no moderating of gender on perceived usefulness or self-efficacy and behavioral intention. Thus, practitioners and policymakers should understand the factors affecting the user acceptance of e-learning systems in order to enhance the students' learning experience.

3. Theoretical Framework and Hypotheses

As have been revealed in previous literature, e-learning usage behavior can vary based on a range of factors and the context in which e-learning systems are used, this section revise and re-define a set of factors that seeks to explain e-learning system usage behavior. In doing so, and after extending UTAUT model the final model includes all following factors: Performance Expectancy (PE), Effort Expectancy (EE), Hedonic Motivation (HD), Habit (HB), Social Influence (SI), and Trust (TR) as determinants of Behavioural Intention (BI), which is along with Facilitating conditions (FC) will influence the actual Usage behaviour (UB).

3.1 Performance Expectancy (PE)

Performance expectancy (or perceived usefulness as defined in the original TAM) is the degree to which a person believes that using a technology would enhance his performance and be useful for him or her (Davis, 1989; Venkatesh et al., 2003). In our case, performance expectancy represent the degree how a person believes that e-learning systems will increase his performance and change his behavioural intention (BI) to use such systems. Many studies in developing world context found that performance expectancy represent a strong predictor for BI (Adedoja, et al., 2013, Tarhini et al., 2013b,c). Hence, the following hypothesis will be tested:

H1: Performance expectancy will have a direct positive influence on user's behavioural intention to use e-learning System.

3.2 Effort Expectancy (EE)

Effort expectancy is represent the degree of simplicity to use a particular system which reveals the degree to how much effort the user put to use the system (Venkatesh et al., 2003). As can be seen, effort expectancy in a way or another represent perceived ease of use in the original TAM model. Abbasi et al. (2015), Wang and Shih (2009), Park et al. (2006), and Abu-Shanab et al. (2010) postulate that there are significant differences in the influence of effort expectancy on customer willingness to use online banking associated with age and gender differences. In fact, as many learners in developing countries are not exposed to many information systems this construct is an important determinant of learning behavioural intention to use such systems (Mtebe & Raisamo 2014, Tarhini et al., 2015). Based on previous argument, the following hypothesis will be tested:

H2: Effort expectancy will have a direct positive influence on user's behavioural intention to use e-learning System.

3.3 Hedonic Motivation (HD)

Hedonic motivation has been broadly been seen as way to measure user's perceived enjoyment, fun, and perceived entertainment (Weijters et al., 2007). Systems that the user feel they will be joyful or fun to use will be more appealing to him. Previously, Brown and Venkatesh (2005) examined hedonic motivation as an enjoyment or happiness resultant from using a technology and found that this factor can play significant part in determining new technology adoption. As people from different courtiers or from different background and demographics, Hedonic motivation can vary. Hence following hypothesis will be tested:

H3: Hedonic Motivation will have a direct positive influence on user's behavioural intention to use e-learning System.

3.4 Habit (HB)

Individual habits can influence user's behavior significantly. People used to technology and systems are believed to have more potential to adopt new technologies even prior to using the technology (Kim & Malhotra, 2005). However, results from some studies did not report positive effects on behavioural intention. For instance, Raman and Don (2013) support any positive effect for habit on behavioural intention. Therefore, this study will test the following hypothesis:

H4: Habit will have a direct positive influence on user's behavioural intention to use e-learning System.

3.5 Social Influence (SI)

Venkatesh et al. (2003) defined social influence, as "the degree to which an individual perceives that important others believe he or she should use the new system". Many studies have stressed the importance of others opinions in shaping ours. However, these results gave mixed results. In fact, the impact of social influence on intention mixed results can be attributed to many factors related to study, users age, culture and so on (Venkatesh and Morris, 2000; Robinson, 2006, Abu-Shanab et al., 2007; Tarhini et al., 2015c,d). Thus, as our study was in a developing country, examining such factor becomes significant to understand its influence on users' intention to use e-learning systems. Therefore following hypothesis will be tested:

H5: Social Influence will have a direct positive influence on user's behavioural intention to use e-learning System.

3.6 Trust (TR)

Throughout the literature of technology adoption, trust has received considerable attention either directly or indirectly and considered and have always been consider as a key determination of user's behaviour intention to use technology (Kim et al., 2009; Luo, 2010). According to Ennew and Sekhon (2007), Trust can be defined as "individual's willingness to accept vulnerability on the grounds of positive expectations about the intentions or behavior of another in a situation characterized by interdependence and risk". Trust can play a significant role in user behavioral intention to use a technology. Yet as trust can differ among nations and technologies, following hypothesis will be tested:

H6: Trust will have a direct positive influence on user's behavioural intention to use e-learning System.

Although much of behavioural intention can be explain by all previous factors, usage behaviour cannot be only explained by behavioural intention but rather as suggested in many previous literature is depend on both facilitating conditions and behavioural intention (Venkatesh et al., 2003, 2012; Tarhini et al., 2014b; 2015d; Al-Alwan et al., 2013).

3.7 Behavioural Intention (BI)

Davis (1989) defined behavioural intention represents the degree to which a person is prompt to accomplish certain behaviour. In this study, we argue that behavioural intention can be determined throughout different factors including performance expectancy, effort expectancy, hedonic motivation, habit, social influence, and trust. Generally, the notion that behavioural intention can affect behaviour influences has been well established in literature (Ahmad et al., 2014, Alenezi et al., 2015) and found to have a positive effect on actual use of technology Turner et al. (2010). Moreover, as behavioural "intention to reuse" can be an appropriate indicator for understanding the successful use of a technology (Li et al., 2012; Tarhini et al., 2015e), we argue that behavioural intention is a valid indictor for the actual use of the e-learning system following hypothesis will be tested:

H7: User's behavioural intention to use e-learning system will have a direct positive influence on usage behavior.

3.8 Facilitating Conditions (FC)

Facilitating conditions, which is "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003). Facilitating conditions are factors in the environment that influence a person's desire to perform a task and include technical support, skills training, and access to information or resources (Groves & Zemel, 2000). Accordingly facilitating conditions could directly predict and influence the actual usage of computers and systems (Alalwan et al., 2013). Hence following hypothesis will be tested to confirm facilitating conditions using e-learning systems effect on actual use of these systems:

H8: Facilitating conditions to use e-learning system will have a direct positive influence on usage behavior.

Based on previous argument, following figure (1) shows the study theoretical model.

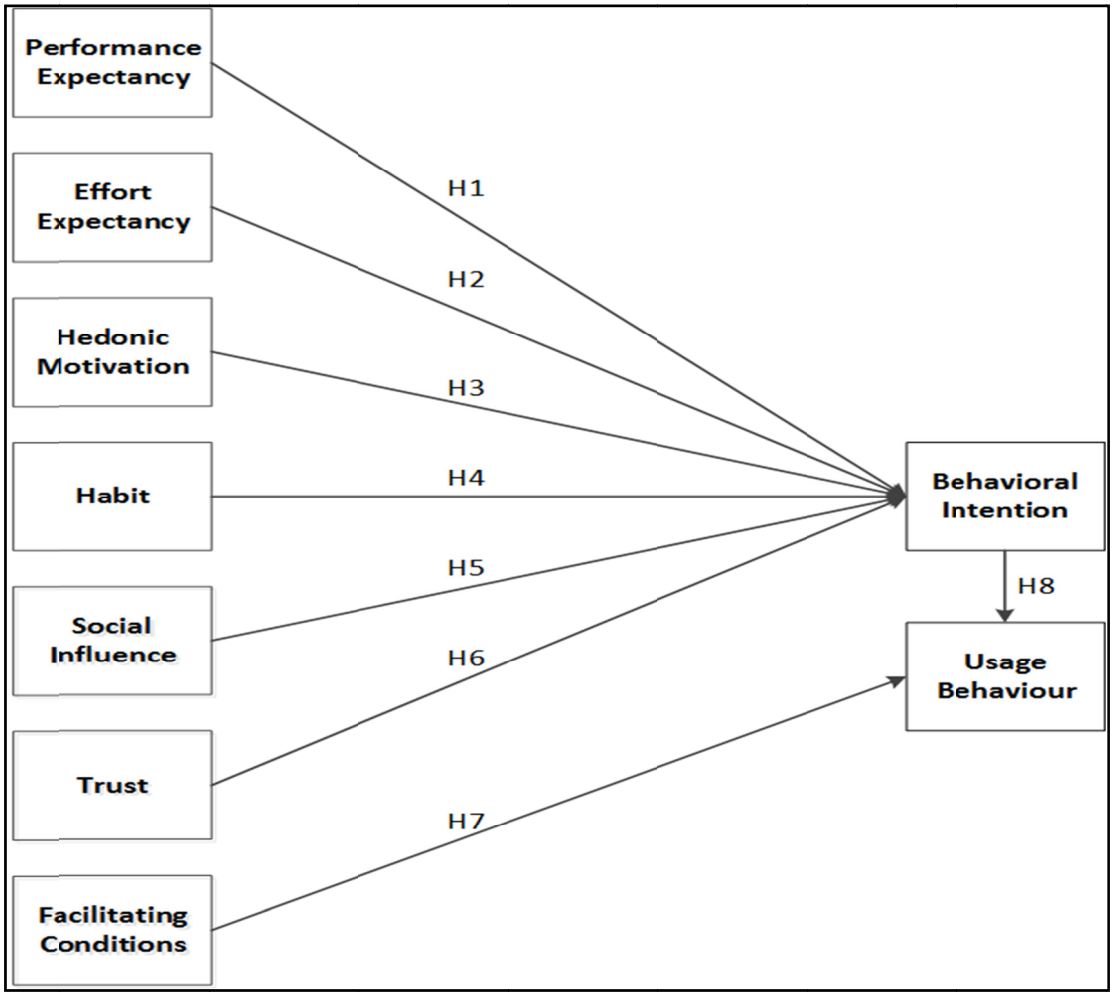

Figure 1. Proposed theoretical model

4. Research Methodology

4.1 Sample and Procedure

This study employed a quantitative research approach to test the proposed research model. More specifically, a personally administrated questionnaire containing 40 questions was used to collect a convenient sample from the current users of e-learning systems of two universities in Beirut (capital of Lebanon) during January and March 2015. Out of the 500 distributed questionnaires 377 were returned indicating a 75.4% response rate. After reviewing the returned questionnaires, 18 invalid questionnaires were excluded due to incomplete data. This left a total number of 359 responses for final analysis. Out of which, 52% were males, with age range varied from 18 to 31 years old and their self-rated internet experience was either some or experienced. With respect to educational

level, 71% were undergraduate students and 39% studying for master degree.

4.2 Measurement

All the scales for the current study were adapted from existing studies related to UTAUT2 and previous related empirical studies. More specifically, PE and EE were measured using five items, whereas BI, SI, FC, HB, HD were measured using four items. These items were adapted from Venkatesh et al. (2003) and related work Tarhini et al. (2014), Teo and Noyes (2014), Venkatesh et al., (2012) and Venkatesh and Zhang (2010). Two items for the UB were also adapted from Venkatesh et al. (2003). Finally, four items were adapted from Mohammadyari and Singh (2015) and Wang (2014) were used to measure Trust. A 7-point Likert scale ranging from 1-strongly disagree to 7-strongly agree were used to measure the items that represent each construct within the proposed research model. The demographic information about the respondents such as gender, age, experience and educational level were measured using a nominal scale.

4.3 Data Analysis and Results

The analysis of the research was conducted in two phases. The first phase examined the descriptive statistics of the measurement items and mainly involved the analysis of the measurement model to examine reliability and validity of the model. The second phase involved the analysis of the structural model and hypotheses testing.

4.4 Descriptive Analysis

The descriptive statistics for each construct used in the model are shown in Table 1. The means were greater than 4.13 indicating positive responses to the questionnaire items. Additionally, the standard deviation (SD) values showed a narrow spread around the mean.

Table 1. Constructs' descriptive analysis

Construct	Mean	Standard Deviation
Effort Expectancy (EE)	5.41	1.23
Performance Expectancy (PE)	5.10	1.24
Social Influence (SI)	4.42	1.34
Habit (HB)	5.16	1.21
Facilitating Conditions (FC)	5.43	1.15
Hedonic Motivation (HD)	4.71	0.96
Trust (TR)	4.20	1.14
Behavioural Intention (BI)	4.66	1.03
Usage Behaviour (UB)	4.13	0.98

4.5 Measurement Model

A confirmatory factor analysis (CFA) based on AMOS 21.0 was used to examine the relationships among the constructs within the proposed model (Arbuckle, 2009). We adopt the maximum-likelihood method to estimate the model's parameters where all analyses were conducted on variance-covariance matrices (Hair et al., 2010). There are some fit indices that should be considered in order to assess the model goodness-of-fit (Hair et al., 2010; Kline, 2010). First, it was determined using the minimum fit function χ^2. However, as the χ^2 was found to be too sensitive to sample size (Hu and Bentler, 1999), the ratio of the χ^2 static to its degree of freedom (χ^2/df) was used, with a value of less than 3 indicating acceptable fit Carmines and McIver, 1981. These indices are: Goodness of Fit Index (GFI); Normed Fit Index (NFI); Parsimony Normed Fit Index (PNFI); Root Mean Square Residuals (RMSR); Comparative Fit Index (CFI); Adjusted Goodness-of-Fit Index (AGFI); the Root Mean Square Error of Approximation (RMSEA). Table 2 shows the level of acceptance fit and the fit indices for our sample after the improvement in model fit. To ensure a good fit model, some indicators (HB3, FC3, SI4, HD2) have to be deleted from the initial measurement model. The process was to delete one indicator at a time and then re-estimate the model (see Table 2).

Table 2. Model fit summary for the final measurement and structural model

Fit Index	Recommended Value Hair et al., (2010)	Measurement Model	Structural Model
χ^2/ df	< 5 preferable < 3	2.53	2.514
Goodness-of-Fit Index (GFI)	> 0.90	0.918	0.922
Adjusted Goodness-of-Fit Index (AGFI)	> 0.80	0.868	0.864
Comparative Fit Index (CFI)	> 0.90	0.940	0.948
Root Mean Square Residuals (RMSR)	< 0.10	0.074	0.072
Root Mean Square Error of Approximation (RMSEA)	< 0.08	0.051	0.053
Normed Fit Index (NFI)	> 0.90	0.925	0.929
Parsimony Normed Fit Index (PNFI)	> 0.60	0.785	0.789

The results of the CFA have shown the good measurement model fit to the data for the proposed model (see Table 2). As Straub (1997) points out, it is important that any hypothesised latent constructs are measured in an appropriate manner. Researchers must ensure that they are actually measuring what they believe to be measuring by ensuring that an appropriate level of construct validity is found. Hair et al. (2010) show that if adequate convergent validity and discriminant validity are found, then together these present sufficient evidence for construct validity. That is, a set of items expected to measure a particular latent factor converge on that factor with strong factor loadings (convergent validity), and the extent to which constructs differ by not sharing variance can be established (discriminant validity). The validity of the constructs can be found in terms of composite reliability (CR), average variance extracted (AVE) (Hair et al., 2010).

Table 3. Construct reliability, convergent validity and discriminant validity (Factor correlation matrix with AVE on the diagonal)

	CR	AVE	TR	PE	EE	SI	FC	HB	HD	BI	UB
TR	0.858	0.603	0.777								
PE	0.909	0.667	0.534	0.817							
EE	0.906	0.657	0.543	0.649	0.811						
SI	0.804	0.525	0.558	0.382	0.386	0.725					
FC	0.746	0.545	0.433	0.440	0.604	0.377	0.662				
HB	0.836	0.537	0.383	0.360	0.424	0.317	0.402	0.733			
HD	0.886	0.663	0.513	0.696	0.602	0.387	0.508	0.414	0.814		
BI	0.712	0.514	0.365	0.351	0.154	0.223	0.152	0.145	0.339	0.622	
UB	0.760	0.607	0.752	0.560	0.538	0.542	0.393	0.440	0.587	0.342	0.779

Composite reliability (CR) and average variance extracted (AVE) were used to estimate the reliability and convergent validity of the factors. Hair et al. (2010) suggest that the CR value should be greater than 0.70 and that the AVE should be greater than 0.50. As can be shown in Table 3, the average extracted variances within our sample were all above 0.514 and above 0.712 for CR. Therefore, all factors have adequate reliability and convergent validity. Additionally, the total AVE of the average value of variables used for the research model is larger than their correlation value, therefore we established discriminant validity.

4.6 Analysis of the Structural Model and Hypotheses Testing

Having established good convergent and discriminant validity, the next step was to assess the structural model in order to test the research model and examine the hypotheses as indicated in Table 4.

Table 4. The research model results, Coefficients

Number	Proposed relationship	Estimate	Result
H1	PE--- > BI	0.201***	Supported
H2	EE--- > BI	0.074	Not Supported
H3	HD--- > BI	0.104*	Supported
H4	HB--- > BI	0.154**	Supported
H5	SI--- > BI	0.062	Not Supported
H6	TR--- > BI	0.116*	Supported
H7	FC--- >UB	0.168**	Supported
H8	BI--- >UB	0.181***	Supported

Notes. * p<0.05; ** p<0.01; *** p<0.001; NS p>0.01); PE: Performance Expectancy, EE: Effort Expectancy, HD: Hedonic Motivation (it has been added in UTAUT2), HB: Habit, SI: Social Influence, TR: Trust, BI: Behavioural Intention, UB: Usage Behaviour, FC: Facilitating Conditions.

The path coefficients of the proposed model are shown in Table 4. 6 out of the 8 hypothesized relationships were supported by the data. Specifically, PE (γ=0.201), HB (γ=0.154), TR (γ=0.116) and HD (γ=0.104) were found to have a significant positive impact on BI toward using e-learning systems. Surprisingly, the path coefficient from EE to BI and SI to BI were not significant. As a result, this study failed to find support for hypotheses H2 and H5. These four factors explained 71.8 % of BI, with PE having the strongest magnitude on the relationship with BI. Our results provide support for H1, H3, H4 and H6. Finally, the results also shows that FC (γ= 0.168) and BI (γ= 0.181) have a positive significant effect on UB, and all together accounted for 40.3% of UB with BI contributing the most, thus supporting H7 and H8. It is important to note that our proposed research model explained more variance of BI and UB compared to the original UTAUT2.

5. Conclusions

Based on the strong foundations of the UTAUT, this study explored some of the most important factors that affect student's usage behavior f e-learning systems. The empirically results of this research showed that. Overall, the research results were consistent of previous literature and showed significant support for all hypotheses in the proposed theoretical model except H2 and H5. The research results show that performance expectancy has a direct positive influence on user's behavioural intention to use e-learning System. This finding is consistent with previous literature studies (Venkatesh et al., 2003; Adedoja, et al., 2013, Tarhini etl al., 2016), suggesting that students with positive feelings about the usefulness of e-learning to them are more likely to have a behavioural intention to use these systems.

However, the results show that it is less likely that the degree of simplicity to use an e-learning system will have a direct positive influence on students' behavioural intention to use e-learning system. The results did not provide sufficient support for hypothesis 2 while accounting for an estimate of 0.074 in explaining overall students behavioural intention to use e-learning system which is not consistent of many pervious literature such Jairak et al. (2009), Tan (2013) and many more. H3 revealed that as more as the students feel that e-learning systems are enjoyable and fun as more this will influence their behavioural intention to use these e-learning systems. Same results were revealed when we came to test H4, were the results showed that students costumed to technology more likely to have a positive intention to use e-learning system. In fact, the effect of both hedonic motivation and habit revealed very significant impact on students behavioural intention to use Facebook as a learning as reported by Escobar-Rodríguez et al. (2014).

Social influence that represents peers, instructors and other people opinions did not show a direct positive influence on student's behavioural intention to use e-learning system. In fact, the effect of social influence is very much not expected specially in the Eastern culture contexts as Lebanon, were teachers and peers attitude and perception cannot have control over students behavior. These results are not consistent with what was revealed by many previous researchers. A recent study from a relevant developing countries and using Structural Equation Modeling technique by Tarhini et al. (2015a) revealed a positive effect for social influence on E-learning acceptance by British students. Another study by Bakar and Razak (2014) confirmed the effects of social influence as well as facilitating condition are positively related to continuance intention to use e-learning. H6 results suggest that trust is a very important to consider in explaining students' behavioural intention to use e-learning systems. In fact, through the literature trust has been critical aspect in motivating students to accept e-learning systems. For instance, Lin et al. (2010) found that, enhancing trust can significantly improve user's

intention to use e-books in academic digital libraries. In fact, trust has been a critical factor in adoption of all systems not only e-learning systems, suggesting that improved trust strategies need always to be in place to accelerate and improve the adoption of these systems. Thus, it is no wonder that trust in this research showed a direct positive influence on user's behavioural intention to use e-learning System. Overall, Performance Expectancy, Hedonic Motivation, Habit, and Trust, could successfully explain around 71.8 % of Behavioural Intention representing a statistically acceptable level for defining students Behavioural Intention.

Finally the combined successful research results that revealed direct positive influence of behavioural intention and facilitating conditions on usage behaviour, the research model results could explained around 40.3% of all factors that control students e-learning usage behaviour. In fact, as many previous research (Venkatesh et al. 2003; Teo et al., 2012; Alalwan et al., 2015), the research findings suggest that more care need to in place to prompt student behaviour to use e-learning while improving technical infrastructure, students skills, and access to supporting resources in order to improve usage of e-learning systems. As more and more learning environments are turning to electronic forms, this paper examined a set of factors that can influence student's usage behaviour of these electronic learning tools. The research results revealed a strong positive impact of performance expectancy, hedonic motivation, habit, and trust on student's behavioural intention to use e-learning systems. While effort expectancy and social influence did not impact student's behavioural intention to use e-learning systems, thus more research should be investigated to reveal the reasons behind such barriers from the Eastern culture contexts. In addition, behavioural intention and facilitating conditions showed strong positive effects on student's usage behviour of e-learning systems. These results suggest that more learning management need to focus more on student technical training, skills development, infrastructure upgrade while promoting and integrating e-learning systems into the traditional learning environments.

As with other research, this study has some limitations. First, the actual use of the e-learning system was measured using a self-reported questionnaire as it was not practical to capture the actual use of the system through the student log file. Second, data were collected from students using a convenience sampling technique and thus should not necessarily be considered representative of the population. Therefore, generalisation of these findings should be treated with caution

References

Abbasi, M. S., Tarhini, A., Elyas, T., & Shah, F. (2015). Impact of individualism and collectivism over the individual's technology acceptance behaviour: A multi-group analysis between Pakistan and Turkey. *Journal of Enterprise Information Management,* 28(6), 747-768. http://dx.doi.org/10.1108/JEIM-12-2014-0124

Abu-Shanab, E., Pearson, J. M., & Setterstrom, A. J. (2010). Internet banking and customers' acceptance in Jordan: The unified model's perspective. *Communications of the Association for Information Systems*, *26*(1), 23.

Abu-Shanab, E., & Pearson, J. M. (2007). Internet banking in Jordan: The unified theory of acceptance and use of technology (UTAUT) perspective. *Journal of Systems and Information Technology*, *9*(1), 78-97. http://dx.doi.org/10.1108/13287260710817700

Adedoja, G., Adelore, O., Egbokhare, F., & Oluleye, A. (2013). Learners' Acceptance of the Use of Mobile Phones to Deliver Tutorials in a Distance Learning Context: A Case Study at the University of Ibadan. *The African Journal of Information Systems*, *5*(3), 80-93.

Ahmad, N., Tarmidi, M., Ridzwan, I., Hamid, M., & Roni, R. (2014). The Application of Unified Theory of Acceptance and Use of Technology (UTAUT) for Predicting the Usage of E-Zakat Online System. *International Journal of Social Science Research, IJSR*, *3*(4), 63-67.

Alalwan, A., Dwivedi, Y., & Williams, M. (2013). Conceptual Framework for Examining Adoption of SST By Jordanian Customers. *British Academy of Management (BAM)*. BAM2013 Conference Proceedings.

Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., Lal, B., & Williams, M. D. (2015). Consumer adoption of Internet banking in Jordan: Examining the role of hedonic motivation, habit, self-efficacy and trust. *Journal of Financial Services Marketing*, *20*(2), 145-157. http://dx.doi.org/10.1057/fsm.2015.5

Al-Arimia, A. (2014). Distance learning. *Procedia Social and Behavioral Sciences*, *152*, 82-88. http://dx.doi.org/10.1016/j.sbspro.2014.09.159

Alenezi, H., Tarhini, A., & Sharma, S. K. (2015). Development of quantitative model to investigate the strategic relationship between information quality and e-government benefits. *Transforming Government: People.*

Process and Policy, *9*(3), 324-351. http://dx.doi.org/10.1108/TG-01-2015-0004

Alenezi, H., Tarhini, A., & Masa'deh, R. (2015). Investigating the strategic relationship between information quality and e-government benefits: A literature review. *International Review of Social Sciences and Humanities*, 9(1), 33-50.

Arbuckle, J. (2009) *Amos 18 User's Guide. SPSS Incorporated.* London, UK: Wiley Online Library.

Barker, P. (2006). Web-Based Intelligent E-Learning Systems: Technologies and Applications. *The Electronic Library*, *24*(4), 570-571. http://dx.doi.org/10.1108/02640470610689250

Bakar, A. A., & Razak, F. Z. B. A. (2014). The Role of Facilitating Condition and Social Influence towards Continuance Intention to Use E-Learning. *International Journal of Technical Research and Applications*, *2*(1), 12-14.

Brown, S. A., & Venkatesh, V. (2005). Model of Adoption of Technology in the Household: A Baseline Model Test and Extension Incorporating Household Life Cycle. *MIS Quarterly*, *29*(4), 399-426.

Cação, R. (2014). Maturity in Large Scale Corporate E-Learning. *International Journal of Advanced Corporate Learning*, *7*(3), 24-28. http://dx.doi.org/10.3991/ijac.v7i3.4005

Carbonell, K., Dailey-Hebert, A., Gerken, M., & Grohnert, T. (2013). Problem-Based Learning in Hybrid, Blended, or Online Courses: Instructional and Change Management Implications For Supporting Learner Engagement. In C. Wankel & P. Blessinger (Eds.), *Increasing student engagement and retention in e-learning environments: Web 2.0 and blended learning technologies* (Cutting-edge Technologies in Higher Education, Vol. 6 Part G, pp. 359-386). Emerald Group Publishing Limited.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(1), 319-339. http://dx.doi.org/10.2307/249008

Dorobat, I. (2014). Models for Measuring E-Learning Success in Universities: A Literature Review. *Informatica Economică*, *18*(3), 77-90. http://dx.doi.org/10.12948/issn14531305/18.3.2014.07

Ennew, C., & Sekhon, H. (2007). Measuring Trust in Financial Services: The Trust Index. *Consumer Policy Review*, *17*(2), 62-68.

Escobar-Rodríguez, T., Carvajal-Trujillo, E., & Monge-Lozano, P. (2014). Factors That Influence the Perceived Advantages and Relevance of Facebook as a Learning Tool: An Extension of the UTAUT. *Australasian Journal of Educational Technology*, *30*(2), 136-151.

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.

Hair, J. F. J., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate Data Analysis*. New Jersey: Prentice-Hall.

Hu, L., & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(2), 1-55. http://dx.doi.org/10.1080/10705519909540118

Hubackova, S. (2015). Modern Methods of University Student's Activation. *Procedia Social and Behavioral Sciences*, *171*, 241-245. http://dx.doi.org/10.1016/j.sbspro.2015.01.116

Groves, M. M., & Zemel, P. C. (2000). Instructional Technology Adoption in Higher Education: An Action Research Case Study. *International Journal of Instructional Media*, *27*(1), 57-65.

Jairak, K., Praneetpolgrang, P., & Mekhabunchakij, K. (2009). An Acceptance of Mobile Learning for Higher Education Students in Thailand. *In Sixth International Conference on eLearning for Knowledge-Based Society, Thailand* (Vol. 17, No. 18, pp. 361-368).

Leba, M., Inocia, A., & Edulhuser, E. (2013). QFD-Method for Elearning Systems Evaluation. *Procedia Social and Behavioral Sciences*, *83*, 357-361. http://dx.doi.org/10.1016/j.sbspro.2013.06.070

Li, Y., Duan, Y., Fu, Z., & Alford, P. (2012). An Empirical Study on Behavioural Intention to Reuse E-Learning Systems in Rural China. *British Journal of Educational Technology*, *43*(6), 933-948. http://dx.doi.org/10.1111/j.1467-8535.2011.01261.x

Lin, H. M., Chen, W. J., & Nien, S. F. (2014). The Study of Achievement and Motivation by E-Learning – A Case Study. *International Journal of Information and Education Technology*, *4*(5), 421-425. http://dx.doi.org/10.7763/IJIET.2014.V4.442

Lin, C. S., Tzeng, G. H., Chin, Y. C., & Chang, C. C. (2010). Recommendation Sources on the Intention to Use E-Books in Academic Digital Libraries. *The Electronic Library*, *28*(6), 844-857. http://dx.doi.org/10.1108/02640471011093534

Luo, X. Li, H. Zhang, J. and Shim, J. P. (2010). Examining Multi-Dimensional Trust and Multifaceted Risk in Initial Acceptance of Emerging Technologies: An Empirical Study of Mobile Banking Services. *Decision Support Systems*, *49*(2), 222-234. http://dx.doi.org/10.1016/j.dss.2010.02.008

Kim, G., Shin, B., & Lee, H. G. (2009). Understanding Dynamics between Initial Trust and Usage Intentions of Mobile Banking. *Information Systems Journal*, *19*(3), 283-311. http://dx.doi.org/10.1111/j.1365-2575.2007.00269.x

Kim, S. S., & Malhotra, N. K. (2005) A Longitudinal Model of Continued IS Use: An Integrative View of Four Mechanisms Underlying Post-Adoption Phenomena. *Management Science*, *51*(1), 741-755. http://dx.doi.org/10.1287/mnsc.1040.0326

Maqableh, M., Masa'deh, R. M. T., &Mohammed, A. B. (2015a). The Acceptance and Use of Computer Based Assessment in Higher Education. *Journal of Software Engineering and Applications*, *8*, 557-574. http://dx.doi.org/10.4236/jsea.2015.810053

Maqableh, M., Rajab, L., Quteshat, W., Masa'deh, R. M. T., Khatib, T., & Karajeh, H. (2015b). The Impact of Social Media Networks Websites Usage on Students' Academic Performance. *Communications and Network*, *7*, 159-171. http://dx.doi.org/10.4236/cn.2015.74015

McGrath, O. (2012). ICT, the Education Sector, and Open E-Learning: A Unique Opportunity for the Decade Ahead. *International Perspectives on Education and Society*, *16*(1), 275-297. http://dx.doi.org/10.1108/S1479-3679(2012)0000016017

Mitakos, T., Almaliotis, I., Diakakis, I., & Demerouti, A. (2014). An Insight on E-Learning and Cloud Computing Systems. *Informatica Economica*, 18 (4), 14-25. http://dx.doi.org/10.12948/issn14531305/18.4.2014.02

Mohammadyari, S., & Singh, H. (2015). Understanding the Effect of E-Learning on Individual Performance: *The Role of Digital Literacy. Computers & Education*, *82*, 11-25. http://dx.doi.org/10.1016/j.compedu.2014.10.025

Mtebe, J. S., & Raisamo, R. (2014). Investigating Students' Behavioural Intention to Adopt and Use Mobile Learning in Higher Education in East Africa. *International Journal of Education and Development Using Information and Communication Technology*, *10*(3), 4-20.

Peacock, S. (2012). Delivering E-Learning. A Complete Strategy for Design, Application and Assessment. *European Journal of Training and Development*, *36*(8), 848-850. http://dx.doi.org/10.1108/03090591211263576

Rostaminezhad, M. A., Mozayani, N., Norozi, D., & Iziy, M. (2013). Factors Related To E-Learner Dropout: Case Study Of IUST ELearning Center. *Procedia Social and Behavioral Sciences*, *83*, 522-527. http://dx.doi.org/10.1016/j.sbspro.2013.06.100

Raman, A., & Don, Y. (2013). Preservice Teachers' Acceptance of Learning Management Software: An Application of the UTAUT2 Model. *International Education Studies*, *6*(7), 157-168. http://dx.doi.org/10.5539/ies.v6n7p157

Robinson, J. L. (2006). Moving Beyond Adoption: Exploring the Determinants of Students Intention to Use Technology. *Marketing Education Review*, *16*(2), 79-88. http://dx.doi.org/10.1080/10528008.2006.11488962

Songkram, N., Khlaisang, J., Puthaseranee, B., & Likhitdamrongkiat, M. (2015). E-Learning System to Enhance Cognitive Skills for Learners In Higher Education. *Procedia Social and Behavioral Sciences*, *174*, 667-673. http://dx.doi.org/10.1016/j.sbspro.2015.01.599

Straub, D., Keil, M., & Brenner, W. (1997). Testing the technology acceptance model across cultures: A three country study. *Information & Management, 33*(1), 1-11. http://dx.doi.org/10.1016/S0378-7206(97)00026-8

Tarhini, A., Hone, K., & Liu, X. (2013a). Factors Affecting Students' Acceptance of E-Learning Environments in Developing Countries: A Structural Equation Modelling Approach. *International Journal of Information and Education Technology*, *3*(1), 54-59. http://dx.doi.org/10.7763/IJIET.2013.V3.233

Tarhini, A., Hone, K., & Liu, X. (2013b). User Acceptance Towards Web-based Learning Systems: Investigating

the role of Social, Organizational and Individual factors in European Higher Education. *Procedia Computer Science*, *17*, 189-197. http://dx.doi.org/10.1016/j.procs.2013.05.026

Tarhini, A., Hone, K., & Liu, X. (2013c). *Extending the TAM to Empirically Investigate the Students' Behavioural Intention to Use E-Learning in Developing Countries*. Proceedings of the Science and Information Conference (IEEE), United Kingdom.

Tarhini, A., Hone, K., & Liu, X. (2014a). The Effects of Individual Differences on E-Learning Users' Behaviour in Developing Countries: A Structural Equation Model. *Computers in Human Behavior*, *41*, 153-163. http://dx.doi.org/10.1016/j.chb.2014.09.020

Tarhini, A., Hone, K., & Liu, X. (2014b). Measuring the Moderating Effect of Gender and Age on ELearning Acceptance in England: A Structural Equation Modelling Approach for an Extended Technology Acceptance Model. *Journal of Educational Computing Research*, *51*(2), 163-184. http://dx.doi.org/10.2190/EC.51.2.b

Tarhini, A., Hassouna, M., Abbasi, M. S., & Orozco, J. (2015a). Towards the Acceptance of RSS to Support Learning: An empirical study to validate the Technology Acceptance Model in Lebanon. *Electronic Journal of e-Learning*, *13*(1), 30-41.

Tarhini, A., Arachchilage, N. A. G. Masa'deh, R., & Abbasi, M. S. (2015b). A Critical Review of Theories and Models of Technology Adoption and Acceptance in Information System Research. *International Journal of Technology Diffusion (IJTD)*, *6*(4), 58-77. http://dx.doi.org/10.4018/IJTD.2015100104

Tarhini, A., Teo, T. & Tarhini, T., (2015c). A cross-cultural validity of the E-learning Acceptance Measure (ElAM) in Lebanon and England: A Confirmatory Factor Analysis. *Education and Information Technologies*, 1-14. http://dx.doi.org/10.1007/s10639-015-9381-9

Tarhini, A., Scott, M., Sharma, K. S., & Abbasi, M. S. (2015d). Differences in Intention to Use Educational RSS Feeds Between Lebanese and British Students: A Multi-Group Analysis Based on the Technology Acceptance Model. *Electronic Journal of e-Learning*, *13*(1), 14-29.

Tarhini, A., Hone, K., & Liu, X. (2015e). A cross-cultural examination of the impact of social, organizational and individual factors on educational technology acceptance between British and Lebanese university students. *British Journal of Educational Technology*, *46*(4), 739-755. http://dx.doi.org/10.1111/bjet.12169

Tarhini, A., Hone, K., & Liu, X. (2016). Examining the Moderating Effect of Individual-level Cultural values on Users' Acceptance of E-learning in Developing Countries: A Structural Equation Modeling of an extended Technology Acceptance Model. *Interactive Learning Environments*, 1-22. http://dx.doi.org/10.1080/10494820.2015.1122635

Teo, T., & Noyes, J., (2014). Explaining the Intention to Use Technology among Pre-Service Teachers: A Multi-Group Analysis of the Unified Theory of Acceptance and Use of Technology. *Interactive Learning Environments*, *22*(1), 51-66. http://dx.doi.org/10.1080/10494820.2011.641674

Teo, T., Ursavas, O. F., & Bahcekapili, E. (2012). An Assessment of Pre-Service Teachers' Technology Acceptance in Turkey: A Structural Equation Modeling Approach. *The Asia-Pacific Education Researcher*, *21*(1), 199-210.

Tran, N. (2013). Evaluation in Distance Education and E-Learning: The Unfolding Model. *Journal of Educational Administration*, *51*(1), 100-102. http://dx.doi.org/10.1108/09578231311291486

Truskolaska, J., Luka, M., Toruj, N., Wrona, K., & Smagowska, P. (2015). E-Learning at the Polish University in the Opinion of Students. *Procedia Social and Behavioral Sciences*, *174*, 3494-3499. http://dx.doi.org/10.1016/j.sbspro.2015.01.1063

Turner, M., Kitchenham, B., Brereton, P., Charters, S., & Budgen, D. (2010). Does The Technology Acceptance Model Predict Actual Use? A Systematic Literature Review. *Information and Software Technology*, *52*, 463-479. http://dx.doi.org/10.1016/j.infsof.2009.11.005

Valsamidis, S., Kazanidis, I., Petasakis, I., Kontogiannis, S., & Kolokitha, E. (2014). E-Learning Activity Analysis. *Procidia Economics and Finance*, *9*, 511-518. http://dx.doi.org/10.1016/S2212-5671(14)00052-5

Venkatesh, V., & Bala, H. (2008). Technology Acceptance Model 3 and a Research Agenda on Interventions. *Decision Sciences*, *39*(2), 273-315. http://dx.doi.org/10.1111/j.1540-5915.2008.00192.x

Venkatesh, V., Michael G., & Morris, A. (2000). Why Don't Men Ever Stop To Ask For Directions? Gender, Social Influence, and Their Role in Technology Acceptance and Usage Behavior. *MIS Quarterly*, *24*(1),

115-139. http://dx.doi.org/10.2307/3250981

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: toward a Unified View. *MIS quarterly*, *13*(2), 425-478.

Venkatesh, V., & Zhang, X. (2010). Unified Theory of Acceptance and Use Of Technology: US vs. China. *Journal of Global Information Technology Management*, *13*(2), 5-27. http://dx.doi.org/10.1080/1097198X.2010.10856507

Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS quarterly*, *36*(3), 157-178.

Wang, Y. D. (2014). Building Student Trust in Online Learning Environments. *Distance Education*, *35*(3), 345-359. http://dx.doi.org/10.1080/01587919.2015.955267

Weijters, B., Rangarajan, D., Falk, T., & Schillewaert, N. (2007). Determinants and Outcomes of Customer's Use of Self-Service Technology in a Retail Setting. *Journal of Service Research*, *10*(1), 3-21. http://dx.doi.org/10.1177/1094670507302990