Telematics and Informatics 32 (2015) 701–719

Contents lists available at ScienceDirect

Telematics and Informatics

journal homepage: www.elsevier.com/locate/tele

Factors affecting the e-learning outcomes: An integration of TAM and IS success model

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ARTICLE INFO

Article history:
Received 14 December 2014
Received in revised form 28 February 2015
Accepted 4 March 2015
Available online 17 March 2015

Keywords:
E-learning
Quality
Satisfaction
Intention
Actual use
Perceived learning assistance

ABSTRACT

The purpose of this paper is to exami[illegible] an [illegible]egrated mod[illegible] TAM and IS success model to explore the effects of quality features, per[illegible]ved ease of use, perceived usefulness on users' intentions and satisfactio[illegible]nd their effec[illegible]n e-learning outcomes such as actual use and perceived learning [illegible]sistance, alongside th[illegible]ediating effect of usability towards use of e-learning in Iran. [illegible]sed on the e-learning user data collected through a survey, structural equations mode[illegible]ng (SEM) and [illegible]h analysis were employed to test the research model. The results reveal[illegible] that "intent[illegible]n" and "user satisfaction" both had positive effects on actual use of e-lea[illegible]ng. "Syste[illegible] quality" and "information quality" were found to be the prim[illegible]tors driving [illegible]ntentions and satisfaction towards use of e-learning. E-learning [illegible]tcom[illegible]ch as actual use and perceived learning assistance were positively predicted [illegible] sati[illegible]nd intention. At last, "perceived usefulness" mediated the relationship be[illegible]n ease of use and users' intentions. The sample consisted of e-learning[illegible]sers [illegible] four pu[illegible]ic universities in Iran. Past studies have seldom examined an inte[illegible]ated mo[illegible]l in the [illegible]ntext of e-learning in developing countries. Moreover, this paper [illegible]ies to p[illegible]ide a liter[illegible]ture review of recent published studies in the field of e-learning.

1. Introduction

To meet educati[illegible]al purp[illegible]es and students' demands, e-learning development emerges to be a catalyst for today educational institutions (D[illegible]ini and Palu[illegible]bo, 2013; Alsabawy et al., 2013). E-learning can be defined as a dynamic and immediate learning e[illegible]nmen[illegible]hrough[illegible]e use of internet to improve the quality of learning by providing students with access to resources[illegible]d serv[illegible]es, tog[illegible]he[illegible]with distant exchange and collaboration (Jeong and Hong, 2013; Dominici and Palumbo, 2013). E-learning [illegible]pports lea[illegible]ners with some special capabilities such as interactivity, strong search, immediacy, physical mobility [illegible]d si[illegible]ating [illegible]ducational activities, self-organized and self-directed learning, corporate training, personalized learning, a[illegible]effective technique of delivering lesson and gaining knowledge (Martin and Ertzberger, 2013; Viberg and Gronlung, 201[illegible] Dominici and Palumbo, 2013; Jeong and Hong, 2013; Bidin and Ziden, 2013). E-learning has a positive impact on both t[illegible]hers and students in that it positively affects the duration of their attention, learning and training tenacity, and their attitudes towards collaboration and interaction (Ozdamli and Uzunboylu, 2014; Chen and Tseng, 2012). Past studies have indicated that anywhere and anytime learning and access to information and communication are facilitated through using e-learning (Pena-Ayala et al., 2014; Islam, 2013; Chen and Tseng, 2012; Ho and Dzeng, 2010). Kratochvíl

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http://dx.doi.org/10.1016/j.tele.2015.03.002
0736-5853/

(2013) and Abachi and Muhammad (2013) note that all individuals involved in e-learning are fond of using it towards learning because of flexible access in terms of time, space, and pace and online collaborative learning. However, demand for the development of e-learning is increasingly growing; still the need for research on potential factors affecting e-learning adoption like quality which is the heart of education and training in all countries (Ehlers and Hilera, 2012) and its outcomes, is felt especially in the context of developing countries (Masoumi and Lindstrom, 2012), a fact that warrants investigation into it. This is followed by the fact that Iranian students' lack of preference for using e-learning, in spite of all pre-mentioned advantages, has created a gap which is seen as a major obstacle in its mass usage and warrants investigation of its reasons. This is in spite of the fact that, as Hassanzadeh et al. (2012) quoted, many Iranian applicants do not have any access to higher education in face-to-face classes and E-learning systems can emerge as an alternative; what's more, satisfy and compensate the weakness of traditional learning methods. So, if we influentially make the best use of learning opportunities provided by computer-mediated and internet-enabled platforms such as e-learning systems, a remarkable result will expect youth and knowledge seekers.

Past studies have used information technology adoption theories such as Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT) and the Unified Theory of Acceptance and Use of Technology (UTAUT) and the DeLone & McLean's model to explore e-learning users' behavioral patterns. Some of these studies have taken the barriers and the drivers of e-learning adoption into consideration (e.g., Islam, 2014, 2013, 2012; Sumak et al., 2011; Cheng and Tseng, 2012). In this paper it is attempted to introduce an integrated model of TAM and DeLone & McLean's model for predicting individual's actual use of e-learning system in Iran. As Li et al. (2012) note, it is essential to examine the relationship between e-learners' experiences, perceptions, and their behavioral intentions to use, because system use is an important indicator of the system's success.

Hassanzadeh et al. (2012), in their attempts to assess e-learning systems success in Iranian universities, identified technical system quality, educational system quality, content and information quality, service quality, user satisfaction, and intention to use, influential towards use of system, system loyalty, and goal achievement. Motaghian et al. (2013), in their attempts to assess the influence of IS-oriented, psychological and behavioral factors on instructors' adoption of web-based learning systems in Iran, identified that perceived usefulness, perceived ease of use, and system quality improve instructors' intentions to use web-based learning systems.

However, only a limited number of published works have applied an integrated model of IS success model and TAM to explore e-learning usage drivers and outcomes in the context of developing countries. This research, compared to Hassanzadeh et al. (2012), tries to step forward to investigate the students' perceptions of e-learning services on the association of e-learning usage determinants and learning outcome based on an integrated model of TAM and IS success model and provides a literature review of recent outstanding related studies in the context of e-learning which appear to be the main contributions of the paper. This paper is focused on Iran as a developing country in the Middle East, which possesses a large population of over 75 million individuals, 37 million of which according to Internetworldstats.com (2012) are internet users, ranking Iran first in the Middle East and fourth in Asia. This study attempts to fill a research gap by addressing the effects of quality features of e-learning systems including social quality, service quality, technical system quality, and content and information quality, accompanied with perceived ease of use and perceived usefulness on students' satisfactions and intentions towards learning outcomes such as actual use and perceived learning assistance, besides investigating mediating effect of perceived ease of use on intention through perceived usefulness.

The remainder of the paper is structured as follows: we address literature review in the next section. This is followed by the presentation of the research hypotheses, discussion of findings, conclusions, and finally recommendations for future studies.

2. Literature review

Owing to complicated, interrelated, and multi-faceted nature of IS success, early attempts fell short in defining information system success. To address this problem, a success model was presented by DeLone and McLean (1992) which was later modified to compensate for changing in IS over time. IS success model (DeLone and McLean, 2003) identified six components of IS success as follows: system quality, information quality, and service quality, intention to use/use, user satisfaction, and net benefits. In IS success model, system use precedes user satisfaction and positive experience with use contributes to the enhancement of satisfaction which sequentially leads to a higher intention to use (Petter et al., 2008). The revised IS success model, as one of the most widely used model for IS success, has so far been frequently adopted to examine e-learning system success.

The Technology Acceptance Model proposed by Davis and Bagozzi (Bagozzi et al., 1992) appears to be the most widely used innovation adoption model. This model has been used in a variety of studies to explore the factors affecting individual's use of new technology (Venkatesh and Davis, 2000). Davis (1989) suggests that the sequential relationship of belief-attitude-intention-behavior in TAM, enables us to predict the use of new technologies by users. In fact, TAM is an adaptation of TRA in regard to IS which notes that perceived usefulness and perceived ease of use determine an individual's attitudes towards their intention to use an innovation with the intention serving as a mediator to the actual use of the system (Mohammadi, 2015). Perceived usefulness is also considered to be affected directly by perceived ease of use (Mohammadi, 2014). Table 1 presents the most related and outstanding studies in the area of e-learning usage.