



## Full Length Article

# A model for assessing the impact of e-learning systems on employees' satisfaction



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## ABSTRACT

In a knowledge and information society, e-learning has built on the extensive use of advanced information and communication technologies to deliver learning and instruction. In addition, employees who need the training do not have to gather in a place at the same time, and thus it is not necessary for them to travel far away for attending training courses. Furthermore, the flexibility allows employees who perform different jobs or tasks for training courses according to their own scheduling. Since many studies have discussed learning and training of employees and most of them are focused on the learning emotion, learning style, educational content, and technology, there is limited research exploring the relationship between the e-learning and employee's satisfaction. Therefore, this study aims to explore how to enhance employee's satisfaction by means of e-learning systems, and what kinds of training or teaching activities are effective to increase their learning satisfaction. We provide a model and framework for assessing the impact of e-learning on employee's satisfaction which improve learning and teaching outcomes. Findings from the study confirmed the validity of the proposed model for e-learning satisfaction assessment. In addition, the results showed that the four variables technology, educational content, motivation, and attitude significantly influenced employee's learning satisfaction.

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## 1. Introduction

Currently, the Internet makes a huge effect to the society and creates a new revolution in the 21st century where everything and everyone are getting on-line and connected (Dharmawansa, Nakahira, & Fukumura, 2013; Oussalah et al., 2014). The web is more than a simple information search and social contact feature, it is also a learning tool that allows other ways to build and share knowledge (Loureiro & Bettencourt, 2014). Internet and web services as an information hub facilitate information and data transferring and sharing (Jafari Navimipour, Rahmani, Navin, & Hosseinzadeh, 2015; Souri & Jafari Navimipour, 2014). Also, in the past few years, the information, communication technology and the e-learning captured a major role in higher education system (Venkataraman & Sivakumar, 2015). The European

commission describes e-learning as the use of the Internet and new multimedia technologies to advance the quality of learning by providing access to resources and services, as well as enabling remote exchange and collaboration (Dominici & Palumbo, 2013). E-learning is a form of distance learning that is completely virtualized through an electronic channel (medium), like the Internet (Lara, Lizcano, Martínez, Pazos, & Riera, 2014). In a knowledge and information society, e-learning has built on the extensive use of advanced information and communication technologies to deliver learning and instruction. It also facilitates lifelong learning (Chen, 2014) and utilizes electronic communication for teaching and learning from a distance. E-learning can be as effective as the conventional in-class face-to-face teaching and learning, if the techniques are appropriate for the teaching goals with a well-organized student–teacher interaction (Oztekin, Delen, Turkyilmaz, & Zaim, 2013). Online learning is widespread in today's educational environments, supported by Virtual Learning Environments such as Moodle™, Sakai™, or Blackboard™ (Del Blanco, Marchiori, Torrente, Martínez-Ortiz, & Fernández-Manjón, 2013) and also may be referred to as e-learning, e-training, or web-based instruction (Colorado & Eberle, 2010). E-learning is also emerging as a popular learning approach utilized by many organizations (Jia et al., 2011). Learners can access the online resource

Abbreviation: AMOS, analysis of moment structures; ANOVA, analysis of variance; E-learning, electronic learning; ELS, electronic learning satisfaction; GOF, goodness of-fit; HR, human resource; IT, information technology; LMS, learning management system; MELSS, measuring e-learning system success; PLS, partial least squares; SPSS, statistical package social sciences; SEM, structural equation modeling; WWW, World Wide Web.

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and discuss with instructors or members in any location, at any time. Within IT-based systems, students not only download materials, but also can share relevant experiences and information with other classmates (Zhang, Ordonez de Pablos, & Zhang, 2012; Zhang, Ordonez de Pablos, & Zhu, 2012). Organizations worldwide prefer e-learning or online learning because they provide a cost-effective and timely learning vehicle to meet the various requirements of continuous education, and train civil agents working at different locations (Chen, 2014). In an e-learning environment, learners supply with learning materials via media, making e-learning systems a cost- and time-effective approach to employee training. Through information technology, learner could not acquire knowledge and skills independently; but they can also have access to material customized to meet their needs without the barriers of time and space.

E-learning, one type of e-services, has been one of the most significant recent developments in both schools and corporations (Violante & Vezzetti, 2015). As another hand, employees who need the training do not have to gather in a place at the same time, and thus it is not necessary for them to travel far away for attending training courses (Jafari Navimipour, Navin, Rahmani, & Hosseinzadeh, 2015). Furthermore, the flexibility allows employees who perform different jobs or tasks for training courses according to their own scheduling. Moreover, employees can control their own learning speed for the learning process (Chen, 2010). They are the important assets of organizations and play a significant role in their success (Jafari Navimipour, 2015; Navin, Navimipour, Rahmani, & Hosseinzadeh, 2014), so it is essential to satisfaction these people (Farooqui & Nagendra, 2014). Managing employees as an organization's primary asset has inspired there to become increasingly more effective for developing programs and policies that leverage talent to align with organizational competencies and at executing organizational strategy (Capece & Campisi, 2013). Therefore, their management is an important challenge in any organization (Navin, Ghabousian, Mirnia & Navimipour, 2012) and staff training and gain their satisfaction are the important part of employees management. Users satisfaction is the extent to which users believe the system meet their information requirements (Cheok & Wong, 2015). Some researchers have defined satisfaction as positive feelings or aggressive responses; whereas others defined it as the gap between expected gain and the actual gain (Tsai, Yen, Huang, & Huang, 2007). Also, user satisfaction is defined as the sum of positive and negative responses to a set of factors (Najmul Islam, 2014) and it is defined as the pleasurable emotional state of an employee, regarding working situations, supervisor, his or her job duties, and the organization as a whole (Yeh, 2014). Information systems researchers have revealed that satisfaction is the most important factors in the success of system implementation and it is influenced by factors attributed to the student, teacher, course design, technology, system design, and environment (Teo, 2014). Recent researches in e-learning are highlighted the need to define novel and advanced support mechanism for commercial and academic organizations in order to enhance the skills of employees and students to increase the overall competitiveness in the new economy world (Acampora, Gaeta, & Loia, 2011).

Since many studies have discussed learning and training of employees and most of them are focused on the learning emotion, learning style, educational content, and technology, there is limited research exploring the relationship between the e-learning and employee's satisfaction. Therefore, this study aims to explore how to enhance employee's satisfaction by means of e-learning systems, and what kinds of training or teaching activities are effective to increase their learning satisfaction. Briefly, the research question is "Which factors are significant in satisfaction of employees using e-learning systems?". Furthermore, the contributions of this paper are as follows:

- Furthering our understanding of how to define, and assess employee satisfaction of e-learning systems.
- Providing a model and framework for assessing the impact of E-learning on employee's satisfaction.
- Helping to a better understanding of instructional strategies for designing and promoting e-learning systems in the organizations.
- Improving learning and teaching outcomes.
- Exploring future challenges for electronic learning.

The rest of this paper is structured as follows. The previous researches, related literature, and factors influencing employee satisfaction in e-learning are provided in the next section. A research design based on an integrated model proposed by this study is described and examined in Section 3. Section 4 presents the analysis of the data. Finally, conclusions and future works are provided in Section 5.

## 2. Literature review

E-learning has become an important trend in the recent years. The advocacy of learner-centered training and the emergence of digital classrooms lead to the demand for transformation of pedagogical design that supports the development of 21st century skills through domain knowledge learning (Kong et al., 2014). In addition, to providing richer resources than the traditional classroom to facilitate learning, e-learning also overcomes the limitations of time and space of traditional teaching. e-learning allows learners to learn independently, meaning that it lacks the supervision and enforcement mechanisms of traditional teaching (Wang, 2014). The use of information technology in current era is considered as a solution for multinational organizations or educational institutions' for their expense and quality issues (Malik, 2010). The importance of the Internet as an information hub to facilitate data transfer and sharing has increased dramatically in the last decade because of its convenience in accessing both professional services and entertainment (Jafari Navimipour & Sharifi Milani, 2015). Based on these technologies, e-learning has caused many changes in higher education, as it emerged as a new paradigm of modern education and has changed previous learning concept (Dominici & Palumbo, 2013). E-learning generally refers to the use of computer network technology, primarily over an intranet or through the Internet, to deliver information and instruction to individuals. It allows training to reach diverse and geographically dispersed workforces in a cost-efficient manner, and can take place on-demand and at a lesser cost than on-site training (Lee, Hsieh, & Ma, 2011).

In the last decade, organizations are frequently using technology to deliver training programs for their employees due to its beneficiary effects such as cost reduction in travel expenses and training time, flexibility in the pace and delivery of training, and boost worker productivity (Ozturan & Kutlu, 2010). Application of online learning technology not only enhances teaching effectiveness but also makes up for the inadequacies of traditional education (Shih, Chen, Chen, & Wey, 2013). Based on the Zhang, Ordonez de Pablos, and Zhang (2012) and Zhang, Ordonez de Pablos, and Zhu (2012) findings, IT capabilities of virtual world are generally related to users' digital options, and then improve the individual and team knowledge work. Also, in a well-developed learning community, learners collaboratively communicate during their educational experience to construct knowledge (Yeh & Lin, 2015). Furthermore, Alkhalaf, Drew, and Alhussain (2012) have showed that the use of e-learning systems significantly and positively impact on student learning satisfaction. Also, Yengin, Karahoca, and Karahoca (2011) showed that the

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