

# Chapter 16

## Electronic Learning: Theory and Applications

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### ABSTRACT

*This chapter aims to explain the overview of electronic learning (e-learning); the emerging trends in e-learning; the important factors of e-learning; the relationships among e-learning quality, learning satisfaction, and learning motivation; the implementation of e-learning; the approaches and barriers to e-learning utilization; e-learning for medical and nursing education; and the significance of e-learning in modern education. When compared to the traditional mode of classroom learning, there is clear evidence that e-learning brings faster delivery, lower costs, more effective learning, and lower environmental impact in the modern learning environments. E-learning allows each individual to tackle the subject at their own pace, with interactive tasks being set in place to ensure a thorough understanding throughout each module. The chapter argues that utilizing e-learning has the potential to increase educational performance and reach strategic goals in modern education.*

### INTRODUCTION

In the knowledge society, electronic learning (e-learning) has built on the extensive use of information and communication technology (ICT) to deliver learning and instruction (Navimipour & Zareie, 2015). With the advent of information technology (IT), teaching and learning using e-learning systems have become common phenomena in recent years (Islam, 2016). The widespread utilization of ICT and resulting access to the Internet have enabled the convergence of e-learning to daily practices of educational institutions (Bates, 2005). E-learning is a part of educational process on many levels of education, from primary education to higher education, extending to postgraduate level (Decman, 2015). E-learning is the effective way to provide the continuing education and has been shown to be an effective method in modern education (Lahti, Kontio, & Välimäki, 2016).

Modern technologies significantly contribute to the flexible modes of teaching and learning (Bharuthram & Kies, 2013). E-learning is one of the most significant developments in both schools and companies

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(Violante & Vezzetti, 2015) and is a pattern of distance learning that is completely virtualized through the Internet (Lara, Lizcano, Martinez, Pazos, & Riera, 2014) toward delivering the learning contents to learners (Farid et al., 2015). E-learning is considered as a fundamental part of student's learning experience in higher education (Urh, Vukovic, Jereb, & Pintar, 2015). E-learning allows students to choose learning contents and tools appropriate to their learning interests, needs, and skill levels in modern learning environments (Kasemsap, 2016a).

This chapter aims to bridge the gap in the literature on the thorough literature consolidation of e-learning. The extensive literature of e-learning provides a contribution to practitioners and researchers by describing the advanced issues of e-learning in order to maximize the educational impact of e-learning in modern education.

## **Background**

Since the late 1990s, the utilization of learning management systems (LMSs) for online education has steadily increased in higher education (Islam, 2016). LMSs have become indispensable tools for online education. LMS, also known as course management system (CMS) or the virtual learning environment (VLE), is an e-learning system that has been widely adopted by universities (Islam, 2014). CMS in higher education has emerged as one of the most widely adopted e-learning platforms (Kim, Trimi, Park, & Rhee, 2012). VLE is widespread in higher education (McGill & Hobbs, 2008), typically used to support e-learning by providing online courses and other learning activities (Lim & Chiew, 2014). VLE constitutes the current information systems-related category for the online training and development (Mueller & Strohmeier, 2010).

The LMS is web-based software that is utilized for the delivery and management of online education and training (Limayem & Cheung, 2011). The LMS contains the important features for distributing courses over the Internet and online collaboration (Islam, 2016). Whether focusing on distance education or classroom-based education, most universities utilize LMSs to improve the learning and teaching processes (McGill & Klobas, 2009). While much of the e-learning development at universities in the past 15 years has been on the institutionally supported LMS, alternative educational technologies are accomplished concerning the rapid growth in emerging technologies and social media platforms (Scott, 2013). Social media enables the creation of knowledge value chain to customize information and delivery for a technological business growth (Kasemsap, 2014).

Normark and Cetindamar (2005) defined e-learning as the ability of system to electronically transfer, manage, support, and control both learning activities and learning materials. E-learning plays an important role in education as it supports online teaching via computer networks and provides educational services by utilizing IT (Ahmad, Härdle, Klinke, & Alawadhi, 2013). E-learning can improve the learning efficiency (Ludwig, Bister, Schott, Lisson, & Hourfar, 2016) and should be utilized to arrange the traditional ways of teaching in modern education (Lüdert, Nast, Zielke, Sterry, & Rzany, 2008). The successful adoption of ICT to enhance e-learning can be very challenging, requiring a complex blend of technological, pedagogical, and organizational components, which may require the resolution of contradictory demands and conflicting needs (McPherson & Nunes, 2008).

The integration of ICT into educational environments has made the important contributions to the learning processes (Drigas, Ioannidou, Kokkalia, & Lytras, 2014) and has accelerated the developments in the e-learning environments (Ozyurt & Ozyurt, 2015). Web-based learning allows students to learn at their own pace, access the information at a time that is convenient for them, and provides modern

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