Chapter 15
A Model to Measure E-Learning Systems Success

Ahmed Younis Alsabawy
University of Southern Queensland, Australia

Aileen Cater-Steel
University of Southern Queensland, Australia

Jeffrey Soar
University of Southern Queensland, Australia

ABSTRACT
E-learning involves adopting and exploiting the potential of new, advanced Information Technology in development and delivery of education. In spite of a rapid growth in the e-learning field there still exists a range of issues facing the stakeholders of e-learning systems. One of the key issues is how to measure e-learning system success. Although considerable attention has been paid to the Information Systems success issue, there remain arguments about the factors which are most effective for measuring Information System success. The issue of measuring Information System success has an impact on evaluating e-learning systems success. This chapter aims to fill this void by proposing an evaluation methodology model to assess e-learning systems success. The contribution of this study is the proposed model to evaluate the success of e-learning systems. The model is based on a thorough review of the e-learning success literature and existing Information Systems success models.

INTRODUCTION
The education sector has been radically impacted by developments in information technology. In the education arena, substantial amounts of money have been invested in the systematic development of technology infrastructure (Georgina & Olson, 2008). Ahmed et al. (2007) consider technology as the main aspect of the college today and it is believed to be the essential cause behind students’ and communities’ success. Rogers (2000) argues that the role of technology in generating rapid change in higher education cannot be ignored and education has received substantial benefits from the use of IT. The introduction of IT has supported communication between teachers and students,
and communication between different universities around the world. Using library resources has become easier because of IT. The introduction of IT in higher education is deemed to be the main key to quality improvements (Turoff, 1999) and one of the most crucial IT enabled developments in the last decade (McGill & Klobas, 2009).

In the context of knowledge management, e-learning has become a key driver in establishing virtual communities (Hardaker & Smith, 2002). New technologies such as mobile and iPod have been employed in e-learning. The main purpose of using these technologies is “to enhance active learning methods and assess students’ understanding” (Stav et al. 2010, p. 179). Because of the internet revolution, it is now possible to exchange and disseminate information and knowledge between members of virtual communities without considering hierarchical channels (Koh & Kim, 2004). E-learning systems are knowledge management systems; knowledge management tools such as collaboration and community tools, and software enable the learners to acquire knowledge (Lau & Tsui, 2009). Institutions of higher education are a main source for creating, transferring, exchanging, and saving knowledge. These institutions attempt to find effective approaches to enhance the process of knowledge and to achieve their objectives; e-learning systems have provided an effective way for achieving this. There still exists a range of issues facing the stakeholders of e-learning systems; one of the key issues is measuring e-learning system success. Although considerable attention has been paid to the information systems success issue, there remain arguments about the factors which are most effective in measuring information system success (Rai, Lang, & Welker, 2002).

**BACKGROUND**

Information technology (IT) has become an essential factor in organisational success due to the critical role of IT in enabling the achievement of individual and organisational goals. The introduction of IT is no longer limited to back-office business functions but has grown to include the core processes in health, education, transport, banking, and other fields. The advantages, which are generated by using technologies such as internet, hardware, and software, have pushed organisations to employ IT to facilitate more and more of their activities. Shannak (1999) argues that performance of primary and supportive activities is considered impracticable in organisations without information technology. In addition, impacts of using IT are extended to include the macro economy of different countries. Doig (2002) states that “the information revolution is sweeping through our economy. No company can escape its effects” (p. 1).

E-learning is believed to be the main outcome of adopting and using the new and more advanced IT in the education sector. These e-learning systems have also been adopted by non-educational organisations (Wang & Wang, 2009). Daneshgar and Toorn (2009) suggest that “In order to sustain competitive advantages in today’s economy, characterised by rapid change, knowledge-intensive and technological-orientation, organizations are adopting e-learning to facilitate the achievement of lifelong learning, and to retain employees” (p.16). The introduction of e-learning systems enables non-educational organisations to receive valuable benefits. For example, IBM saved USD200 million in 1999, providing five times the learning at one-third the cost of their previous methods and Rockwell Collins reduced training expenditure by 40% with only a 25% conversion rate to web-based training (Strother, 2002). Furthermore, according to Giga Information Group, use of an e-learning system to train employees rose from 21% in 2002 to 75% in 2005 (Wang & Wang, 2009).

In the USA, 90% of 2-year and 89% of 4-year public education institutions offered distance education courses in 2000-2001 with enrolments of 1,472,000 and 945,000 respectively out of total enrolment of 3,077,000 (Holsapple & Lee
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