Chapter 15

Mobile Learning in Higher Education

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ABSTRACT

In recent years, there has been an explosion in the growth of mobile learning across all sectors of education. Keen interest in mobile learning has led to a proliferation of views, perspectives, and diverse activities underpinned by different learning theories. This chapter focuses on various dimensions of mobile learning, including definitions, theoretical dimensions, mobile learning applications in higher education, and future research directions. Mobile learning is still an emerging and immature field. The chapter provides broad definitions and discussions of mobile learning drawing upon existing work. By exploring the experiences and views of various researchers, the chapter reveals the opportunities and challenges involved with mobile learning.

INTRODUCTION

With the proliferation of mobile computing technology, mobile learning (m-learning) has begun to offer stunning new technical capabilities in education (DiGiano et al., 2003). Mobile learning is “the exploitation of ubiquitous handheld technologies, together with wireless and mobile phone networks to facilitate, support, and enhance and extend the reach of teaching and learning” (Brown, 2010, p. 28). Compared to other types of learning activities, mobile learning starts from the assumption that learners are continually on the move, from physical locations to topics; mobile learners are usually the ones who initiate learning activities and self-control their educational processes and outcomes; and they may “engage with their surroundings to create impromptu sites of learning” (Sharples, Taylor, & Vavoula, 2005, p. 3). Younger generations who have grown up
using portable video game devices and wireless technology are attracted to this innovative way of learning and communication (Yi, Liao, Huang, & Hwang, 2009). Researchers and instructors are interested in the technical design and the development of mobile technologies (Peng, Su, Chou, & Tsai, 2009) and have implemented various studies to probe this new genre of learning.

We have seen growing visibility and significance of mobile learning: technological mobile learning innovations are deployed in academic settings to demonstrate technical feasibility and pedagogic possibility (Taylor & Evans, 2005); mobile technologies are used as flexible replacements for static desktop technologies used in conventional e-learning (DiGiano et al., 2003; Chen, Kao, & Sheu, 2003); and mobile learning technologies are enhanced with informal, personalized, situated learning (Clough, Jones, McAndrew, & Scanlon, 2008). However, relatively little is known about the big picture of how higher education institutions make use of mobile devices to support teaching and learning, nor are well summarized theories and principles for mobile learning available for instructors and practitioners in the field.

The objectives of this chapter are to show how mobile learning can transform the delivery of education in higher education as well as to introduce sound mobile learning theories. Specifically, the chapter will present the current status of mobile learning in higher education, explore what mobile learning is, provide theoretical information on mobile learning, introduce the latest research on mobile learning and various examples of how mobile learning is used in higher education, outline the challenges faced when designing and implementing mobile learning, and give future research directions.

DEFINITIONS OF MOBILE LEARNING

The explosive growth of mobile devices that support personal communication are accelerating the transition away from desktop web-based application and are transforming social notions of discourse and knowledge. Today’s mobile devices have strong computing capabilities with high-frequency central processing unit (CPU). Wrist-worn devices, mobile phones, handheld computers, web pads, pen tablet computers, laptop computers, and so forth have been widely used in mobile learning (Sharples & Beale, 2003). These devices put convenient multimedia service applications into practice with friendly human computer interfaces and operation modes. Through a variety of network connection techniques, the devices can also access abundant network resources. These devices have been deployed as learning tools in both formal and informal learning contexts and have been used from small-scale, short terms trails to larger, more sustained and blended deployment (Traxler, 2009).

In spite of the enthusiasm with mobile learning, the concept of mobile learning is still emerging and unclear (Brodt & Verburg, 2007). Definitions of mobile learning have emerged from different perspectives. Some emphasize the relationship between mobile learning and e-learning, claiming that it is the combination of e-learning and mobile computing (Holzinger, Nischelwitzer, & Meisenberger, 2005). Others believe that it is a “special type of e-learning, bound by a number of special properties and the capability of devices, bandwidth, and other characteristics of the network technologies being used” (Stone, 2004, p. 146). Yet still, others claim that it is e-learning carried out by means of mobile devices such as PDAs (Personal Digital Assistants) and digital cell phones (Rosenthal, 2003), and that it is e-learning using mobile devices and wireless transmission (Milrad, 2003).

Some researchers define mobile learning purely in terms of its technologies and hardware, that is, it is learning that takes place with the help of portable electronic tools (Quinn, 2000); it involves using mobile devices such as smartphones and PDAs to facilitate the learning process.