Chapter 12
Mobile Computing in Higher Education

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ABSTRACT

This chapter examines research on mobile learning, its impact in higher education, and the technologies being used as mobile learning devices. Mobile learning includes devices that have the capability to be site and/or job specific, such that learners can access content immediately regardless of their location. Mobile learning is being successfully employed in many higher education classrooms throughout the world, as it enables new methods of learning and for redefining learner interactions. New teaching methods may now be possible that allow for exchange and creation of information in novel learning contexts. Social and organizational issues of mobile learning are analyzed and presented.

INTRODUCTION

Over the past decade, the use of mobile technology has increased dramatically both within and outside of higher education. This increase has been caused by a need to communicate through wireless technologies, such as the mobile phone, as well as the proliferation of portable media players such as the iPod. These devices are no longer seen as solely communication media; more recently, they have also been used in the classroom for learning. In fact, a market research study conducted by Ambient Insight, LLC estimates that 246.9 million dollars will be spent on mobile learning technology by 2011 (Brown & Metcalf, 2008, p. 1). Due to this popularity and growth, it is expected that mobile technology will soon become a common learning tool, utilized by both corporate and academic institutions. As such, there is a great need to examine both the potential and difficulties this technology may have on learning within these environments.

This chapter will examine current research on mobile learning, its impacts in academia, and the technologies being used as mobile learning devices. The chapter begins by describing and defining mobile learning. Then, the technologies, research, and specific examples for each mobile technology will be presented. The chapter concludes with a discussion of implications of mobile computing on social and organizational aspects in higher education.

What is Mobile Learning?

While many researchers have discussed and defined mobile learning (mLearning), the concept of mobile learning remains less clear (Traxler, 2007). Mobile learning has emerged to encompass multiple technologies, which are discussed further in this chapter. As a result, research is generally limited to features or technologies only contained in one device rather than all of the devices that can be used in a mobile learning environment. Thus, the research on mLearning is device and feature dependent, which makes it difficult to generalize findings across technology devices.

Defining mLearning can be a complicated task, as the boundaries separating different technology applications are blurred. The literature often defines mLearning by comparing it to eLearning, which shares many of the same characteristics. Elearning most often refers to learning that takes place on a computer, in an online environment, where information is sent or received instantly (Rosenberg, 2001). Research on mobile learning (Caudill, 2007; Kukulska-Hulme, 2005; Peters, 2007; Traxler, 2007) depicts it as an extension of eLearning that includes the use of technology that can be carried easily in a pocket or purse, used 'on the go' (on the job or en route), turned on instantly without the need to boot up, is internet capable through a service or wifi connection, and has other identifiable features such as word processing ability, html browser, SMS messaging, Camera, MP3 player, GPS, etc.

In addition to technology features, Klopfer, Squire, and Jenkin (2008) have identified several functions unique to mlearning that include social interactivity, context sensitivity, connectivity, individuality, and portability. Social interactivity refers to the popularity of texting, social sites such as Facebook and Twitter, and social interactions that take place in real time. Context sensitivity refers to the ability to gather real-time data in a unique environment and location. Connectivity, through handhelds, provides the ability to connect to databases, networks, computers, and other mobile users. Individuality provides students with self-directed learning opportunities to explore on their own. Portability refers to devices that are portable and can fit into your pocket that can be used in real time or 'on the go'.

Each of these features and uses help to create a clear line that separates mLearning from eLearning. The major difference is that eLearning involves a desktop or laptop computer whereas mLearning utilizes a mobile device. These mobile devices include cell phones, PDAs, iPods, portable GPS units, as well as other types of mobile technologies. Thus, the standard desktop computer and laptop are not considered mobile learning technologies due to the fact that they need to be booted up, cannot fit into a pocket, and cannot be used on the go (Caudill, 2007).

Additionally, mobile learning includes devices that have the capability to be site and/or job specific, such that learners can access materials immediately regardless of their location. For instance, if you were in a museum and wanted more information on a particular piece of art you were viewing, you could simply look it up. Another example includes making electronic comments or notes about a lecture that is currently taking place. Elearning does not always offer these same functionalities.

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