Chapter 20
Mobile Learning: Effective Strategies for K-12 Learning Environments

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ABSTRACT

Teachers are encouraged to remain current by embracing and integrating new technologies effectively into their teaching processes. Ubiquitous technologies such as mobile devices are found in all settings including K-12 learning environments. This chapter discusses findings from an action research study. The findings reveal that mobile learning is still in its infancy stage in most K-12 learning environments and there is need for effective integration of mobile technologies into the curriculum. This chapter offers suggestions and strategies on how teachers could integrate mobile technologies into teaching and learning processes. Finally, this chapter provides an insight into some of the critical factors that need to be in place to ensure seamless transition, integration, and sustained implementation of mobile learning.

INTRODUCTION

Mobile technologies have become commonplace in today's society. In homes, work places, and learning environments. In K-12 learning environments, students, and teachers have mobile technologies such as smart phones, iPads, and other mobile tablets connected to the Internet. Mobile learning has been defined as "the provision of education and training on Personal Digital Assistants (PDA)/ palmtops/ handhelds, smartphones and mobile phones" (Taxler, 2009, p.3). Similarly, MoLeNET (2007) defined mobile learning as "the exploitation of ubiquitous handheld hardware, wireless networking and mobile telephony to enhance and extend the reach of teaching and learning." Another definition of mobile learning focuses on the mobility of technology as eLearning through mobile computational devices such as Palms, windows CE machines, even your digital cell phone (Quinn, 2000). In this chapter, mobile

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learning is defined as the use of mobile technologies such as smartphones and tablets in K-12 teaching and learning environments.

Keegan (2005) notes that one of the most interesting aspects of mobile technology use today is that it is being used effectively "in a variety of different settings, except in education" (p.3). In the same vein, Kaganer, Giordano, Brion and Tortoriello (2013) highlighted that mobile technologies such as in tablets offer hope for "improving learning and collaboration but only if truly integrated into learning settings" (p.68). This reveals that though most teachers and students own mobile technologies, they are not effectively integrating the technologies into the teaching and learning process. Prensky (2004) suggested that using mobile technology as learning devices whether in or out of school requires a "good deal of rethinking and flexibility on the part of educators" (p. 273).

Empirical research indicates that when mobile technologies are integrated effectively into teaching and learning processes, mobile learning increases academic success for students as it promotes and supports collaborative learning (Hsu & Ching, 2013) and self-directed learning (Simba Information, 2013). However, like any instructional technology tool, the success of mobile learning technology in K-12 learning environments depends on proper integration into the pedagogy (Kaganer, Giordano, Brion & Tortoriello, 2013). Without research-based strategies and practical guides on how to integrate technology into the classroom, mobile technologies would be "another tool" that teachers grapple with to find its place into the curriculum, and eventually, it will be outmoded as an instructional tool. This chapter attempts to provide K-12 teachers with practical strategies on how to integrate mobile technologies into the classroom. The strategies are differentiated according to grade levels: early childhood /elementary, middle school, and high school.

IMPORTANCE OF MOBILE TECHNOLOGY IN LEARNING

Some studies suggest that the main motivations for the use of mobile technologies in education are: better accessibility to information, affordability, ease of use, and the ability to implement every day, everywhere, and anytime (Keegan, 2005; Kukulska-Hulme, 2007). In addition, mobile learning systems and applications have consistently gained praise among learners who contend that using handheld devices for learning increases their overall satisfaction and motivation (Lui & Li, 2010). Research indicates that students are more engaged when teachers use a variety of instructional delivery tools (Tomlinson, 1999). In addition, student engagement and motivation is maximized when the instructional tool or mode of learning is of interest to them, in other words, students' voices are essential in the selection of technology tools and pedagogical styles (Geer & Sweeney, 2012). When mobile technology is selected and implemented with student input (or "students voices"), it has the potential to alter student behaviors, interactions, and overall attitudes toward learning (Homan & Wood, 2003). The use of mobile devices to create learning opportunities can be advantageous to students of all ages (from early childhood through higher education), and has the potential to increase academic achievement and life-long learning as the students move on to tackle the imminent changes in the ever evolving 21st century environment (Shinde, 2012).

A review of literature reveals that there is not much research in terms of how to integrate mobile technology effectively in K-12 learning environments, and the implementation factors that lead to sustained integration of mobile technologies in such learning environments. This chapter seeks to shade light on

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