Chapter 14
Designing Mobile Learning for the User

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ABSTRACT
There is increasing use of mobile devices around the world to conduct everyday business and to socialize. As a result, learners will be using mobile devices to access learning materials so that they can learn from anywhere and at anytime. Learning materials must be designed using proven instructional design models and learning theories. This will allow the learning system to provide flexibility in learning and to meet the needs of individual learners. In addition, good user interface design must be followed in mobile learning to allow learners to interact with the learning system and learning materials to facilitate learning from anywhere and at anytime.

INTRODUCTION
There has been a rapid increase in the use of mobile devices such as cell phones, smart phones, tablet PCs, web pads, and palmtop computers by students and individuals in business, education, industry, and society. By the end of 2010 there will be over four billion mobile phones world wide and mobile connection will bypass landline connections. As a result, there will be more access to information and learning materials from anywhere and at anytime, using these mobile devices. The trend in society today is learning and working “on the go” rather than having to be at a specific location to learn and work. Also, there is a trend towards ubiquitous computing, where computing devices are invisible to the users because of the wireless connectivity of mobile devices. As a result, we are seeing more use of mobile learning in education and training.

There are many definitions of mobile learning. According to Ally (2004), mobile learning is the use of electronic learning materials with built-in learning strategies for delivery on mobile computing devices to allow access from anywhere and at anytime. O’Malley et al (2003) defined mobile learning as any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities...
offered by mobile technologies. Traxler (2005) defined mobile learning as any educational provision where the sole or dominant technologies are handheld or palmtop devices. The definition of mobile learning we will be using in the chapter is “the delivery of learning materials and providing learning support on mobile devices to provide flexibility to the learner so that the learner can learn while they are mobile”.

Because of the proliferation of use of mobile technologies around the world, there is a significant interest in mobile learning to provide flexibility in learning. The design of the mobile learning interface from a pedagogical viewpoint is critical to promote success in learning (Subramanya & Yi, 2006). A systematic framework must be used for the design of mobile learning so that developers produce high quality learning materials that meet the needs of learners. An example of a comprehensive framework for elearning is the one developed by Badrul Khan (2005) which has been used successfully to develop elearning materials globally. This chapter will describe how to design the mobile learning interface and materials for the user using Khan’s framework (as shown in Figure 1).

**Figure 1. Badrul Khan framework for mobile learning (Adapted with permission)**

![Badrul Khan framework for mobile learning](image)

**BENEFITS OF MOBILE LEARNING TO THE USER**

Mobile learning is accessible across time zones, and location and distance are not issues. In asynchronous mobile learning, students can access their online materials anytime, while synchronous mobile learning allows for real-time interaction between students and instructors. The wireless capability of mobile devices allow users to connect from anywhere and anytime so that they can access learning materials when they want to learn, and from where they want to learn. Mobile devices are small enough to be portable, which allows users to use the device from any location to interact with other users from anywhere, and at anytime to share information and expertise, complete a task, or work collaboratively on a project. Learners can use the wireless capability of their mobile devices to access up-to-date and relevant learning materials from the web and to communicate with experts in the field that they are studying. Situated learning, which is the application of knowledge and skills in specific contexts, is facilitated, since learners can complete courses while working on the job or in their own space, and apply what they learn at the same time.

Mobile devices have many benefits because they allow for mobility while learning and working; however, there are some limitations to mobile devices that designers must be aware of when designing learning materials for delivery on mobile devices. Some of the limitations of mobile devices in delivering learning materials include the small screen size for the output of information, small or restricted input devices, low bandwidth, and challenges when navigating through the information. As a result, it is critical that the learning materials and the interface be designed properly for easy access and must include quality learner interaction.