Chapter 5
Accessing Knowledge from the Bedside:
Introducing the Tablet Computer to Clinical Teaching

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ABSTRACT

Tablet computers are very powerful devices that have numerous potential uses in the medical field. Already, the development community has created a wide range of applications that can be used for everything from the most basic level of medical undergraduate education to specialist care delivery. The challenge with tablet computers as a new technology is to find where they fit most effectively into healthcare. In this chapter, the authors focus on how tablets might find a role in the area of care delivery in the educational setting. Included is a discussion on the tablet computer's place on the eLearning / mLearning spectrum, an annotated list of recommended medical applications, a description of challenges and issues when deploying the tablet computers to clinical settings, and finally a proposed pilot study that will explore the effectiveness of using a tablet computer in a clinical teaching setting. The content of this chapter can be applied to many workplace and learning settings that may find tablet computers beneficial such as businesses that require mobile communications, K-12 schools, and higher learning institutions.

INTRODUCTION

In a recent article by Rachel Ellaway, entitled "eLearning: Is the revolution over?" the comment is made that eLearning has "disrupted the status quo in many areas of medical education" (Ellaway, 2011, p. 300). She continues to write that eLearning has been able to provide learners access to resources and convenient learning. Moreover, eLearning has improved the ability for

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clinical teachers to track participant learning and also made an impact at the organizational level, by challenging traditional methods and values. Tablet computers are part of the eLearning revolution and are quickly becoming a popular mechanism for accessing information in a clinical setting. Consequently, as in most professions, technology is changing the way that professionals do business. In this instance, the tablet computer is affecting the way physicians practice medicine.

The Apple iPad® is an example of a tablet computer that offers the convenience of a smartphone and much of the functionality of a laptop or desktop computer. In a recent article in the Journal Annals of Emergency Medicine, entitled "The iPad: Gadget or Medical Godsend?" Eric Berger (2010) notes that many physicians carry smartphones including the iPhone® allowing them to have access to thousands of medical applications (apps). He suggests the iPad is a mechanism with which to connect the world of eLearning with the convenience of mobile learning. "With a large brilliantly lit screen, the iPad has the potential of being a more comprehensive device, pushing physicians away from their desktop computers, where they may eventually be able to perform numerous tasks from viewing radiographs to ECGs" (Berger, 2010, p. 21).

Already, the development community has created a wide range of applications that can be used for everything from the most basic level of medical undergraduate education to specialist care delivery. This chapter begins with a discussion about online learning (eLearning) and mobile learning (mLearning) and where the tablet computer finds a home in the arena of technology assisted medical education. The conversation then proceeds to a commentary on several recent mobile learning studies conducted using tablet computers or smartphones in medicine and other disciplines. This brief literature review is followed with some considerations for implementing tablet computers in clinical settings. The challenge with the tablet computer as a new technology is to find where it fits most effectively into healthcare. In this case, we will focus on how it might find a role in the area of care delivery in the educational setting. Issues such as managing connectivity, power, and input will be explored. Finally, the chapter concludes with a needs analysis and an introduction to a pilot project, which will explore the use of tablet computers to support rural community specialist preceptors (teachers who teach family medicine residents) with the implementation of the University of Ottawa's revised Family Medicine (FM) Triple C Competency-based curriculum, resources (including medical and general applications), and evaluation tools in an effort to support and enhance effective teaching and learning.

WHERE DOES THE TABLET COMPUTER BELONG?

Before the discussion of how the tablet computer can be used for medical education, it is important to define a few terms. The term eLearning is widely used but can mean different things to different people (Bullen & Janes, 2007). A common understanding of eLearning is as a form of distance education where courses are delivered over the Internet (Bullen & Janes, 2007). However, eLearning is increasingly being described as any electronically mediated learning in a digital format. Bullen and Janes presented an eLearning continuum for formal online learning that provides a useful reference when considering eLearning (see Figure 1). Although this model is an over simplification of eLearning it does lend itself well to show how mLearning can be integrated into the continuum.

The *Mobile Learning Group* at Athabasca University define distance learning as incorporating, "all forms of instruction in which instructor and student are physically removed from one another by time or space from traditional correspondence courses to web-based instruction" (What is Mobile Learning, para. 1), and eLearn-