Chapter 5

In Defence of Mobile Technologies: Exploring the Socio–Technological Dimensions of M–Learning

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ABSTRACT

There has been a rapid growth in the research concerning mobile phones and the delivery of the learning experience in developing countries in recent years. The aim of this chapter is to improve understanding of this expanding research area and in so doing consider the potential for mobile phone applications for the delivery of educational services for the poor. The current state of knowledge is assessed by reviewing the existing research articles drawn from both peer-reviewed academic journals and non-peer reviewed studies and other practitioner-orientated sources. Issues relating to educational needs and the measurement of impacts have been comparatively neglected, whilst application design and adoption have received greater attention. Emphasis tends to be on devices and new ways to deliver services, but ignores the broader context of educational services for the poor and tends to be technology-led (Duncombe, 2006). In order to correct this imbalance in research, the paper identifies key points relating to concepts, methodologies, issues addressed and evidence presented and provides pointers to future research directions.

INTRODUCTION

There is an increasing and unprecedented adoption of mobile technologies in developed and developing countries alike (Keegan 2003). Mobile technologies are revolutionising education, transforming the traditional ways of learning and teaching into ‘anytime’ and particularly, ‘anyplace’ education. Empirical studies have reported the advantages of using mobile technologies in learning environments, including supporting group work on projects, engaging learners in learning-related activities in diverse physical locations, and enhancing communication and collaborative learning in the classroom (Liu et al., 2003). This paper seeks to address this question by assessing the current state of knowledge concerning the potential of mobile phones as a delivery mechanism for learn-
ing services for the poor in developing countries. While the more technical aspects of wireless access and a detailed technical analysis of the latest mobile technologies are not included here, it is acknowledged that the technical capabilities of mobile devices are a crucial factor in developing and sustaining feasible m-learning projects. A number of handheld computers offer telephone functionality as well as e-mail and Internet access, alongside conventional personal digital assistant (PDA) features. At the same time, a number of mobile telephones offer some computing or data functionality, making the distinction between phone- and data-centric handheld devices ever more difficult to draw (Becta 2004). Therefore, it is assumed that both handheld computing devices (for example, a PDA) and mobile phones are in fact handheld devices, and will be referred to as such in this paper. Limited research has been conducted on the potential of mobile technology for educational use in developing countries. Wood (2003) states that using mobile technologies in education may contribute to combating the digital divide in developing countries, as this technology is generally cheaper than desktop computers, particularly mobile phones and PDAs. In order to develop a model that could be used for m-learning adoption, it is essential to gain a greater understanding of the considerations associated with the use of mobile technologies. Therefore, after providing a brief overview of the history of mobile technologies this paper will delve into the theoretical frameworks regarding the use of these technologies in education in the less developed world.

A Brief Background and Definition of M-Learning

Due to the enormous growth and development of the Internet over the past decades and the experimental use of the WWW and e-mail in education, e-learning emerged as an educational concept during the 1990s and has grown into a globally accepted, even necessary mode of delivery in most educational institutions. Web-based Learning Management Systems such WebCT, Blackboard and others are already widely used across the globe.

Further Internet developments over the past decade brought about a greater need for wireless connections and the development thereof. Wireless communication received enormous boosts when mobile phones reached the market. By 2000, landline telephones and also wired computers were beginning to be replaced by wireless technologies. The whole world was literally going mobile as the turn of the millennium approached. Apart from mobile phones, other wireless and mobile computational devices such as Laptops, Palmtops, PDAs (Personal Digital Assistants) and Tablets also rapidly entered the market – some devices of course with more success than others for particular markets. It is only since the turn of the millennium that educational institutions started to experiment with wireless and mobile technologies and that the concept of m-learning started to emerge. Figure 1 depicts the development of mobile technologies in relation to the Internet.

Given these historical developments, m-learning is a term coined to cover a complex array of possibilities opened up by the convergence of new mobile technologies, wireless infrastructure and e-learning developments. As with any emerging paradigm, there are many attempts to define its essence. It is worth quoting some of these definitions in order to capture the common threads inherent in the term m-learning:

1. “M-Learning is the intersection of mobile computing and e-learning: accessible resources wherever you are, strong search capabilities, rich interaction, powerful support for effective learning, and performance-based assessment. E-Learning independent of location, time or space” (Quinn, 2000).
2. “A new m-learning architecture will support creation, brokerage, delivery and tracking of learning and information contents, using