

Mobile Learning and an Experience with Blended Mobile Learning

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INTRODUCTION

Pownell and Bailey (2001) identify four “technological trends” in the relationship between Information and Communication Technologies and educational environments. In the 1960s the first computers, which were very large and extremely expensive were rarely used in the educational area. They were only used to help in administration and in management. In the seventies with the arrival of the personal computer, schools in several countries, as in the United States, introduced computer basic courses to help students learn the use of this new technology. In the nineties the large-scale diffusion of Internet and the World Wide Web lead to a huge number of people who communicated through a computer mediated communication. At last in 2000, extremely small computers were sold on the market and the era of wireless connections began. These two factors in the educational field encouraged the beginning and the development of mobile learning.

BACKGROUND

With the term mobile learning, we refer to the modality of the distribution of almost any educational content, for example: entire traditional courses or new mini-courses, using mobile technologies such as Pocket PC, PDA (personal digital assistant), Table PC, eBook, mobile phones, and other portable devices.

Mobile learning is different from e-learning, since it is not just electronic, it is mobile (Shepherd, 2001). Mobile learning is seen as the natural evolution of e-learning, according to Hoppe, Joner, Millard, and Sharples (20003) “m-learning is e-learning using a mobile device and wireless transmission.” Harris (2001) also writes, “m-learning is the point at which

mobile computing and e-learning intersect to produce an anytime, anywhere learning experience.”

With mobile learning the learning phase is not bound to a location with specific characteristics, potentially becoming omnipresent learning. For example, delays during commuting and traveling on the underground become potential learning moments. In general, any moment which would otherwise be “wasted” or that before now could not be enriched with didactic contents, has now become a potential learning moment thanks to mobile learning.

The privileged target of this new type of distance education typology will be made up of professionals who spend most of their time away from their work location and need updated information at the last moment; or for example, commuters who do not have time to keep updated if not the doing time it takes to ride to the office on the train or university students who also work.

Since 2000, studies and projects, which focalize on mobile learning, are increasing constantly. The MLEARN conference (the World Conference on Mobile Learning) held for the first time in 2002, has now become an annual event, as for example, the International workshop on Mobile and Wireless Technologies in Education (WMTE) and The National Workshops and Tutorials on Handheld Computers in Universities and Colleges, held in the United Kingdom. In Italy, apart from the third MLEARN conference held in 2004 near Rome, it is difficult to identify conferences or research groups that study this specific topic.

Many researchers, especially in the UK, Finland, North America, Chile, Japan and Taiwan have been and still are dealing with this new learning methodology.

Several authors subdivided the works presented in literature into research areas based on the arguments discussed. Specifically Hoppe, Joiner, Millard, and Sharples (2003) identified the following three research

lines: “the first work group deals with the nature of the collaborative activity: how this favors or hinders learning, and the implications relative to the development of the mobile wireless technology for learning. The second work group reports studies regarding the innovative use of mobile wireless technology for learning. At last, the last series of work shows the innovative developments in the field of learning” (p. 256).

Trifonova and Ronchetti (2003) also have cataloged their research relative to m-learning on the basis of three macro areas: infrastructural research, accessing content and communicating and interacting with people.

In the first area, studies treat problems connected to navigating on the web with a device, such as a PDA with a very small screen. This area includes all of the studies relative to the techniques of adapting contents of Web pages to mobile devices.

The second area includes research relative to the adaptation of courses taught in e-learning to mobile learning, the creation of new courses from scratch, and finally also included in this group are the areas of study relative to the construction of WAP portals. For example, in this area there are several studies which are relative to the development of different systems for combining WAP courses with notification systems via SMS. These studies took place in different universities, of which the Griffith University Gold Coast where “HyWeb” was developed (Jones, Jo, & Cranitch, 2002) and the Minnesota State University where Virtanen, John, and Wright (2002) developed “mid2000”.

Finally, the last area contains all of the studies on communications and interactions. Interaction can be limited (for example: as only an exchange of messages) or it can be very structured. In both cases, as Trifonova and Ronchetti (2003) evidenced, technology has a lot to offer. Experiments based on the simplest interactions were conducted by Stone, Briggs, and Smith (2002) and Stone and Briggs (2002) at Kingston University. Experiments based on very structured interactions were studied in the Norwegian project KNOWMOBILE (Smørdal, Gregory & Langseth, 2002).

However if we analyse literature, we can see that literature concerning theoretical models and the mobile learning scenario has only recently started to appear.

The fundamental question is—which learning theories can be applied to mobile learning, and which educational activities can be followed using mobile devices? A complete and detailed analysis of mobile learning experiences making use of existing pedagogic

theories is published in the report by the Nesta Futurlab titled *Literature Review in Mobile Technologies and Learning* (Naismith, Lonsdale, Vavoula, & Sharples, 2005). The report concludes that at present there is no theory about mobile learning; we must work towards an approach that can integrate and put together elements of various theories, those elements that are most likely to support the various learning activities.

In fact, the authors emphasize that mobile devices can support a wide range of activities for students of all ages and that the most significant experiences involve an eclectic approach, where many theories are harmonically mixed. Sharples, Taylor, and Vavoula (2005) stress that learning is a social process which occurs within a context where students cooperate with each other and with their teachers, in order to arrive at interpretations of the real world. Learning occurs when technology is used through the continuous exploration of the external world and the negotiation of its various meanings.

OUR BLENDED MOBILE LEARNING EXPERIENCE

In the spring of 2006 the Nomadis lab of the University of Milano-Bicocca designed a blended mobile learning training course, which included two face-to-face meetings and a learning unit to be used on the Pocket PC. It was decided to use the blended learning methodologies since it is believed that both e-learning and m-learning present a series of pros and cons, as in all new applications. Therefore, the forms of blended learning are able to take advantage of the benefits of the technological innovation without having to sacrifice the strong points of the more traditional and consolidated modalities of in class learning.

One of the main reasons why the Nomadis lab has started this experience is the wide spread use of mobile devices, their portability and their cost that has now become accessible for most people. The success of these mobile devices is also connected to their operational flexibility and wide use for non-didactic purposes (Corlett, Sharples, Bull, & Chan, 2005). A handheld computer easily becomes a multimedia display unit for listening to music, for watching videos and images, as well as having mobile telephone functions. As many experiences testify, learning through mobile devices can also be fun for users (Facer, Joiner, Stanton, Reid,

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