

# Mobile Access To Knowledge

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## Introduction

Since about five thousand years ago, knowledge has been mediated by different types of *technologies*. At first, oral speeches started to be translated into written texts, so handwriting became the first “technology of the word” (Ong, 2002) arousing its powerful effect on the learning environment until now. The expression *technology of the word* means all the artifacts developed by human beings aiming to “fix” the oral language on an external vehicle/support, to produce, reproduce and change a message, to move and to access information (Cantoni, 2007).

During this time, technologies of the word have evolved in press, telegraph, telephone, cinema, radio, television, computer and mobile devices... just to mention some of the main steps of a complex story. The advancement of these technologies, as well as the evolution of the society, have deeply affected also the way people learn. According to Mike Sharples:

During the computer era of the past fifty years, education has been re-conceptualised around the construction of knowledge through information processing, modelling and interaction. For the era of mobile technology, we may come to conceive of education as conversation in context, enabled by continual interaction through and with personal and mobile technology. (Sharples, 2005, p. 147)

Indeed, in the context in which we currently live, that of the information/knowledge society, new channels allow people access to knowledge, and the relationships between education, technology and society are more interwoven than ever (Traxler, 2009a). Handheld devices have become mediating tools for learning in a mobile society where also the nature of knowledge and learning are changing. First of all, being able to find relevant information (and properly evaluate its quality) is becoming the defining characteristic of learning in general, and particularly of mobile learning (Traxler, 2009b). Second, the role of teaching, and of teachers, in an online environment is becoming at the same time less apparent and more pervasive. Actually, bottom-up information and user-generated contributions to knowledge have become essential to produce online knowledge, such as encyclopedia, and *hic et nunc* information, such as critical comments, Q&A, etc... Mobile communication, indeed, is enhanced the role of communication and context in the process of learning. According to Dewey “communication is the central process of education by means of we negotiate differences, understand each other’s experiences, and establish shared meaning” (Cantoni, 2006; Dewey, 1916; Sharples, 2005).

## Mobile Learning Is (should be) Collaborative, Personalized, Situated and Authentic

If we look for instance at the field of tourism, it is easy to demonstrate how the social interaction of users, by commenting or rating a specific destination, may influence the visitors’ knowledge and opinions on that place (Marchiori & Cantoni, 2011). This reveals how learning strongly depends on the learning environment and the social interaction between learners and teachers. Indeed, according to Lave and Wenger, learning should also be considered as a

social process whereby knowledge is co-constructed by a process of increased participation ([Lave & Wenger, 1991](#)). Among the most famous examples of user social interaction in the field of tourism is the TripAdvisor social network, in which tourists can find information about hotels, flights, restaurants and recreational activities of a destination reviewed by travelers who have been there, and who have posted their comments, photos, videos and rating of the quality of the place. Mobile devices easily support this kind of application answering the travelers' need of information just in time, just enough, and just for them ([Inversini, Cantoni, & Buhalis, 2009](#); [Traxler, 2009a](#)).

The example above demonstrates how learning can be effective in a collaborative environment as well as the immediacy of mobile devices to support collaborative learning experiences. Indeed, their portability facilitates the access to knowledge and knowledge sharing, prompting people to search for answers and to provide small pieces of information (such as a comment, a rate, or a picture). Furthermore, mobile devices offer the possibility to support a learning which is situated, personalized, and authentic. According to Traxler ([Traxler, 2009a](#)), learning is *personalized* because it is based on the individuality of learners in term of personal history, context and needs, and on the opportunity to access the needed knowledge without space and time constraints. It is *situated*, because it takes place in the same context in which it is applied, supporting context-specific and immediate learning ([Lave & Wenger, 1991](#)). Finally mobile learning is *authentic* when it involves real-world problems/issues, and is based on specific tasks, such as data-capture, location-awareness, and collaborative working, that require learner's engagement in the exploration and inquiry, as well as the opportunity for social interactions.

### **Mobile Learning is Mobility**

The literature is rich of mobile learning definitions, providing researchers with main characteristics like "personal, spontaneous, disruptive, opportunistic, informal, pervasive, situated, private, context-aware, bite-sized and portable" ([Traxler, 2009b](#)). Besides that, we consider mobile learning from a *learner-centred* approach ([Sharples, 2006](#)), focused on the mobility of learners and of their learning experience, according to O'Malley's definition of 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 learning opportunities offered by mobile technologies" (O'Malley et al., 2003).

We can observe how mobile technology are fostering a new trend of learning, based not only on the acquisition of information but also on the production of user-generated content. Wikipedia is the most famous example of online, free and collaborative platform, allowing learners to share their knowledge through the creation of articles or the modification of existing ones. Moreover, this phenomenon related to the use of mobile technology, has evolved in the so-called citizen-journalism, where members of the public using telephones, SMS/MMS, and camera-phones capture information, and post it straight onto shared platforms such as Flickr, Youtube, Twitter, and others more specific depending on their goals ([Traxler, 2009b](#)).

Ushahidi, for example, is an open source platform for information collection, visualization and interactive mapping, aiming to “democratize information, increase transparency and lower the barriers for individuals to share their stories” (Ushahidi, 2008). Its main innovative aspect is that it requires only a basic mobile phone with short message services (SMS) capacity to collect users’ contributions. For this reason Ushahidi has been used mainly in developing countries, “to monitor elections, track violence and crime, provide logistical support in natural disasters, and oversee interventions” (UNDP, 2012). For sure, crowd-sourced information cannot replace checking of facts and official sources, but allow people on the ground to capture events as they are happening, and disseminate stories, photos and videos instantly, even without requiring internet connection or high cost solutions (UNDP, 2012).

### **Mobile Technologies Support Formal and Informal Learning**

Mobile devices offer the opportunity to support both formal learning and teaching, as well as informal and lifelong learning (Futurelab et al., 2004).

According to Cross, *formal learning* is a way of learning which is done purposely, with a scheduled timing, a fixed location, a strict control, a written contract between the learner and the institution, with a highly structured program based on certain content, which provide specific outcomes (Cross, 2006). An example of formal mobile learning is the “M-Drill: Progressing effortlessly” educational app, developed by the cyberlab of HES-HO, aiming to improve students’ English language skills and progressions in sixty different levels. Users, once subscribed, have to defined their free time slots for the quizzes and then they will receive drill notifications. When students make a mistake, the system automatically detects the nature of the error and proposes others questions of the same type. In this perspective mobile learning is characterized as an extension of eLearning (Sharples, 2006) in which “conventional” activities of eLearning can be also achieved through mobile phone applications.

Within informal learning, instead, the learning experience is mostly incidental, and may happen anytime and anywhere in daily life. Learners have not signed any contract with institutions and the learning process is unstructured, uncontrolled, with unstated outcomes and based on fuzzy content (Cross, 2006). The activities supporting learning could be personal experiences, relationships, play, manipulation, conversation, the web and all those activities that are basically free and spontaneous. An example of this category is the use of handheld devices (e.g.: Apple iPad) as a cultural artifact and mediator between visitors and guides of a cultural institution; in such a case in Switzerland, an iPad application prototype proved to partially stimulate reactions in visitors, and, most of all, to foster social discussion, debates, and negotiation of meanings (Sala, Vannini, & Rubegni, n.d.).

As we can see from the examples above, mobile devices may be a convenient source of information and tool for communication in order to support formal and informal learning. Moreover, they emphasize the role of ownership, informality, spontaneity, mobility and context that will be less accessible to ‘conventional’ eLearning, enhancing additional unique

functionalities (as location-awareness or video-capturing) to promote educational experiences that would otherwise be difficult or impossible (Traxler, 2009b).

## **M-Learning for Development**

The above literature and examples on mobile learning shows how handheld devices are particularly suitable in collaborative, situated, personalized, authentic and formal and informal environments. Recent studies also have demonstrate that effectiveness of mobile learning especially in developing countries, where the use of ICTs is very limited and challenged by environment and infrastructural constrains ([Donner, 2008](#); ITU, 2003; Kukulska-Hulme, Traxler, & Pettit, 2007). In fact, in most African Countries mobile communications have been the main driver of ICT considering that “no other technology has been in the hands of so many people in so many countries in such a short time, and globally more people now have access to a mobile device than to justice or legal services” (UNDP, 2012).

This is because mobile phones are cheap, portable, and a user friendly technological tool that offers people real-time interactive voice communication, SMS and access to information without requiring neither high physical infrastructure, nor an high level of literacy ([Donner, 2010](#); UNDP, 2012). In the Republic of Cameroun for example, mobile subscriptions per 100 people rose from 12% in 2005 to 44% by 2010, with 85% of the population now covered by a signal (Dominguez-Torres & Foster, 2011). Moreover, the price of monthly mobile basket in 2009 was quite affordable, i.e. less than 15% of the country Gross National Income (GNI) per capita (The World Bank, 2009).

## **Mobile A2K: Culture and Safety in Africa**

Finally, the project presented here involves the issues of mobile learning from a wider perspective. *Mobile Access to Knowledge: Culture and Safety in Africa. Documenting and assessing the impact of cultural events and public art on urban safety* (Mobile A2K) is a project coordinated by SUPSI University of Applied Sciences and Arts of Southern Switzerland conceived and supported by lettera27 Foundation and co-funded by Swiss Network for International Studies. As the title implies, Mobile A2K aims to exploit mobile technologies to facilitate people’s access to knowledge about public art installations and urban safety in three violent African cities: Douala (Cameroun), Luanda (Angola) and Johannesburg (South Africa). Mobile A2K is mainly addressed to local citizens, national educational institutions, local governments, tourists and scholars.

From a cultural, historical and touristic point of view it is difficult to find information about urban public art in African cities, and even more difficult to find specific information related to the level of safety and security of those areas. The Ushahidi software will be used to map several cultural hubs of the three mentioned cities. The goal is to relate cultural knowledge to the level of safety (in terms of food, water, infrastructures, etc..) and security (in term of criminality) of the cities’ urban neighborhoods where public art installations are positioned. Finally the results will be mapped and compared in order to define if culture can produce

positive side effects on urban safety. Data about public installations will be provided by the committer art galleries and institutions, while information about safety and security will be collected through user-generated content and citizens' SMS linked directly to the Ushahidi platform that will localize them in a geographical position.

The visualization of information on a map could provide a learning experience to citizens and tourists, as well as schools and cultural art institutions. Besides, the democratization of information could enhance also communication between citizens and government, and become a strategic way for the government to be update on citizens' needs in order to offer primary services to all (UNDP, 2012).

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