



# Empowering Education through M-Learning: A Literature Review

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## Abstract

Over the past ten years mobile learning has grown from a minor research interest to a set of significant projects in schools, workplaces, cities and rural areas around the world. There is an ongoing change in human behavior as it relates to technology, and our methods to support learning and performance need to adapt accordingly. M-learning is considered as the next generation of e-learning using mobile technologies. Students' awareness of such technology is one of the most focuses for success adoption. Mobile learning is the delivery of learning, education or learning support on mobile phones, PDAs or tablets. E-Learning has provided the ability for traditional learning to break out of the classroom setting and for students to learn at home.

**Keywords:** *M-learning, E-learning*

## Introduction

We can use our mobile phones to order a pizza, navigate our way to an unknown address, calculate exchange rates, play solitaire, and, just possibly, have a conversation with someone. Why not then add 'brushing up on Shakespeare' or 'learning Portuguese' to the ever-expanding list of things you can do with a handheld device? In an era where every street, station and coffee shop is filled with people tapping away at their smart-phones, the concept of learning on the move, or m-learning, as it is now known, seems to make perfect sense.

Mobile learning has enhanced upon e-learning by taking it a step further and allowing students to learn virtually anywhere a mobile signal is available. New mobile technology, such as hand-held based devices, is playing a large role in redefining how we receive information. The recent advances in mobile technology are changing the primary purpose of mobile devices from making or receiving calls to retrieving the latest information on any subject.

Evidence suggests that m-learning is becoming an increasingly demanding topic in educational circles, galvanized by various factors, including the falling prices of tablets and smart-phones, the improved ease of use of touch screen and keyboard functions on these devices, and the fact that they're overtaking previous technology by conveniently functioning as a combination of the separate gadgets (e.g. laptop, phone, camera) people may have used in the past.

## Meaning of M-learning

M-learning or mobile learning is defined as "learning across multiple contexts, through social and content interactions, using personal electronic devices."

MacMillan's Dictionary.

A form of distance education, m-learners use mobile device educational technology at their time convenience.

In the term m-learning, “m stands for mobile”, and the same concept is also often simply referred to as mobile learning. M-learning is any kind of learning that takes place via a portable, hand-held electronic device. Though the term immediately conjures up images of smart-phones, it in fact also refers to learning via other kinds of mobile devices, such as tablet computers, net-books, and digital readers.

### **Background – m-learning**

The concept of *mobile learning* goes right back to the 1970s, when companies such as *Lingua-phone* started releasing recordings of language lessons that could be listened to at the learner's convenience. The term m-learning is a much more recent modification, motivated by mobile communications technology and modelled on expressions such as *e-learning*, which refers more generally to learning and teaching supported by computers and other *electronic* devices

### **Need and significance of the study.**

As a country, we need to educate the next generation of scientists, inventors, engineers, and entrepreneurs. Educating a workforce that is effective in a global context and adaptive as new jobs and roles evolve will help to support our economic growth. Mobile learning makes it possible to extend education beyond the physical confines of the classroom and beyond the fixed time periods of the school day. It allows students to access content from home, communicate with teachers, and work with other people online. The value of mobile devices is that they allow students to connect, communicate, collaborate and create using rich digital resources.

### **Review of related literature**

In the study “the effectiveness of m-learning in the form of podcast revision lectures in higher education”, Chris Evans(2008), described the effectiveness of mobile learning (m-learning) in the form of podcasting, for teaching undergraduate students in Higher Education. Podcasting involves downloading a series of audio or video broadcasts (files) onto a digital media player, via a computer, over a period of weeks. These can then be watched or listened to when, where and as often as students choose. The use of digital media players, popularized by Apple's iPod, is widespread amongst undergraduate students. A pilot survey of Business and Management students indicated that over 74% owned some form of digital media player, with a further 7% indicating that they intended to purchase one in the next six months.

Studies that investigated the use of mobile learning or mobile tools in teacher education contexts mainly reported positive contributions to the outcomes investigated. Husbye&Elsener,(2013),researched that mobile tools were found to have potential for helping pre-service teachers understand and develop new literacies .Kearney &Maher, (2013);,explored mathematics in the real world, Shotsberger, 2003 conducted scientific investigations.

Mahruf( 2010) found that m-learning engages the students in rich language learning contexts. McCaughtry& Dillon,(2008)explored the real world physical education with the help of m-learning. Price (2014).found that these tools can fundamentally change the way classrooms are organized within teacher education programs by increasing mobility.

Cushing,(2011); Husbye&Elsener,(2013); Kearney & Maher, (2013) found another advantage related to features that connect pre-service teachers to their colleagues, enhance professional learning through collaboration, and facilitate mentoring processes .Crippen& Brooks, (2000); Herro et al., 2013; Kommers, (2009) ,found that mobile tools could help build closer relationships as well as more personalized learning experiences for teacher candidates as needs change over time.

Aubusson, (2009) found advantages in integrating mobile learning into in-service teacher education contexts which included promoting reflection-in-action as a critical component of professional learning and allowing participation in knowledge production and sharing regarding teaching practices and capturing, reflecting upon, and sharing experiences .In addition to conducting professional development via mobile tools, researchers also investigated the impact of such programs on teachers' inclusion of these technologies in their classrooms.

Looi(2014) investigated a mobilized 5E science curriculum co-designed by the teachers and observed that their pedagogical orientations affected both their technology integration and their relationships with students. Advantages of mobile learning for teacher educators were also addressed in the literature.

Husbye&Elsener (2013) found that after being exposed to teacher educators' mobile device integration, Pre-service teachers began to utilize such tools in their own practices. By encouraging mobility, the teacher educators' role shifted from a content provider at the center of instruction to a facilitator, engaging pre-service teachers as they collaboratively constructed meanings around content

### **E-learning and M-learning**

While m-learning and e-learning diverge on their "M" and "E", they obviously have similar characteristics as they are both concerned with online learning. For example, the participants in an M-learning as in an E-learning environment are the learners, the author, the administrator and the tutor. As it is the case with E-learning, M-learning provides teaching contents for training. Similarly, they can both be in real or remote time; thus, making use of the same transmission modes. In also both environments, a virtual tool of learning is required in order to allow a close follow-up of the training and management of the interactions between the various participants involved. M-learning is distinguished from E-learning by the use of mobile technologies.

### **Some of the distinguishing features of M-learning are as follows:**

#### **1. Mobility of learners**

Consequently, the concept of mobility appears to have overcome more than ever space constraints. Thus, through m-learning the learner can keep track of his learning activities from any location even while moving from one place to another on the condition that a wireless network service is available.

#### **2. More Formal and Informal settings**

M-learning has multiplied possibilities for life-long learning in a more formal and informal setting regardless of space and time constraints. Moreover, mobility has a considerable effect on the nature of activity offered because learners in m-learning can reach and move easily in geographical areas to practice trainings centered on the practical aspects.

#### **3. Practical and Projects**

Indeed, in addition to the traditional ones such as courses and multiple choice exercises, m-learning provides a suitable environment for the training containers of the practical aspects. For example: assistance need, practical work, project realization since the learner can follow these activities in an authentic context. M-learning seems to cater for certain specialties more than others such as: agronomy, geology, archaeology, etc. If the use of mobile technologies is behind the widening of activities type in m-learning, these technologies impose many constraints.

#### **4. Characterized by voice, graphs and animations.**

Indeed, mobile devices are characterized by their small size and limited battery that impose the use of more voice, graphs and animation.

### **On the other hand,**

#### **The period of disconnection**

The major problem encountered with wireless networks which connect mobile devices to the internet is the period of disconnection generally due to the high cost of connection or to the lack of the necessary infrastructure. For this reason, m-learning platforms must envisage services which take account of this constraint by supporting the periods of disconnection.

According to Diane Shawe (2013), Twelve Benefits of m-learning are as:

- 1. Access – Aids voluntary and active learning:** A mobile learning environment is about access to content, peers, experts, portfolio artifacts, credible sources, and previous thinking on relevant topics.
- 2. Metrics – Performance of Knowledge:** As mobile learning is a blend of the digital and physical, diverse metrics (i.e., measures) of understanding and “performance of knowledge” will be available. It is important that mobile learning supplies and validate that learning has taken place.
- 3. Cloud – Increased collaboration:** *The cloud is the enabler of “smart” mobility. With access to the cloud, all data sources and project materials are constantly available, allowing for previously inaccessible levels and styles of revision and collaboration.*
- 4. Transparent:** Transparency is the natural byproduct of connectivity, mobility, and collaboration. As planning, thinking, performance, evaluation and reflection are both mobile and digital, they gain an immediate audience with both local and global communities through social media platforms from twitter to facebook ,linkedin to Pinterest .
- 5. Play – Learning by doing:** Play is one of the primary characteristics of authentic, progressive learning, both a cause and effect of an engaged mind. In a mobile learning environment learners are encountering a dynamic and often unplanned set of data, domains, and collaborators, changing the tone of learning from academic and compliant to personal and playful means that soft skills training is becoming even more apparent.
- 6. Asynchronous Learning:** Among the most powerful principles of mobile learning is asynchronous access. This unbolts an educational environment from a school floor and allows it to move anywhere, anytime in pursuit of truly entrepreneurial learning.
- 7. Self-Actuated:** With asynchronous access to content, peers, and experts comes the potential for self-actuation. Here, learners plan topic, sequence, audience, and application via facilitation of teachers who now act as experts of resource and assessment.
- 8. Divergent Thinking:** With mobility comes diversity. As learning environments change constantly, that fluidity becomes a norm that provides a stream of new ideas, unexpected challenges, and constant opportunities for revision and application of thinking.
- 9. Curation – Evidence storage and Management:** Apps and mobile devices can not only support curation, but can do so better than even the most efficient teacher might hope to do. By design, these technologies adapt to learners, store files, compare and evaluate, publish thinking, and connect learners, making curation a matter of process rather than ability.
- 10. Blending the Learning Styles:** A mobile learning environment will always represent a much better path to the whole concept of blended learning. –physical movement, personal communication .Learning styles and digital interaction.
- 11. Always-On – Classroom never full:** Always-on 24hr learning is self-actuated, spontaneous, iterative, and recursive. There is a persistent need for information access, cognitive reflection, and interdependent function through mobile devices.
- 12. Authentic Learning:** All of the previous 11 principles yield an authenticity to learning that is impossible to reproduce in a classroom using the industrialized teaching methods. They ultimately converge to enable experiences that are truly personalized changing the way we think about learning and teaching.

## Analysis of Reviews: Limitations of m-learning:

Limitations of m-learning services are considered as one of the issues that should be taken care of and be aware of when discussing m-learning implementation. Several studies (Corlett *et al.*, 2005; Muthaiyah, 2004; Rekkedal and Dye, 2007; Seppala *et al.*, 2002) noted that mobile device have some limitations including: Memory size, battery life, high line cost and small screen. These limitations can hinder using mobile technology widely in learning. Nevertheless, Corlett *et al.* (2005) gave directions to extend the wireless network across the campus and to redesign software as well as hardware for m-learning purposes. Hence, university environment will be adequate to utilize the latest technology innovation without delay (Seppala *et al.*, 2002). However, developments in telecommunication technology provide new facilities and interfaces for students and staff of universities. In order to improve the organizational infrastructure for students and staff, every new technology arriving to the market has to be investigated for its benefit for daily use. In the case of the WAP, the consortium of Mobile Services for Campus and Student needs "Campus Mobil" was founded in order to investigate innovative services based on this technology (Barker *et al.*, 2005).

## Conclusion

Nowadays, m-learning services are interesting and very recent addition as a new vital platform for the higher education environment. This article urges the students and teachers for utilizing m-learning services in the higher education environment. However, the barriers and obstacles that could be faced during the actual use of mobile learning should be considered. Literature shows that while the limitations of mobile technology are reducing over time, the capabilities are going on increasingly. However, Mobile wireless technology use in higher education will keep growing and will become the choice of the learning environment.

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