



## Use of Mobile for Learning in Globalization

### Abstract

*Mobile Learning (M-Learning) implies shift from courseware to performance-ware, mouse-and-click to pen and voice interface and centralized server to peer to peer network. Mobile technology, by far, has been the most rapidly adopted technology in history. Today, it is the most popular and widespread technology on the planet, with the global mobile industry expected to grow to \$1.9 trillion by 2015 from the current \$1.5 trillion level. Research suggests the global subscriber base is estimated to increase to 4.6 billion, while the number of mobile connections would reach 9.1 billion by 2015 (Economic Times and GSM Association, 2012). M - Learning creates intriguing opportunities for new forms of learning because they change the nature of the physical relations between teachers, students, and the objects of learning. M learning is most powerful tool of distance learning as it provides facilities of peer group learning, wide range of pattern of learning and work activity, wider topics and their relationship to prior experience etc. Mobile Learning paradigm promises rich interactivity, total connectivity and powerful processing with capacity for individualized flexible adaptation. It has serious implications for educators, who would be required to develop new courses and revise existing course for delivery on mobile computing devices. That's why Mobile Learning is slowly but clearly emerging as the 'future' of learning. The framework described in this paper that what is M-Learning? Meaning of M-Learning, how and why the learning is shifting from E-Learning to Mobile Learning. This paper also focused on technical challenges as well as social and educational challenges of Mobile Learning.*

**Key-words:-** Mobile Learning, E-Learning, Challenges to Mobile Learning, Technology

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#### Introduction

Mobile phones are misnamed. They should be called 'gateways to all human knowledge'-Ray Kurzweil, Futurist (at Handheld Learning '09)

Education and training is the process by which the knowledge, information and skills of one generation are passed on to the next. Over the past two decades, technology devices have become mobile, portable and networked - to the point that they have become universal in everyday life. The use of mobile devices has become common among a wide range of age individuals due to affordability and accessibility (Newhouse, Williams, & Pearson, 2006). Significant investments have been made by each and every country to provide infrastructure, content, and resources related to the integration of mobile devices into learning situations (Johnson, Smith, Willis, Levine, & Haywood, 2011), and researchers have long had an attentiveness in this evolving land (Kukulka-Hulme, Sharples, Milrad, Arnedillo-Sánchez, & Vavoula, 2009).

Mobile Learning (M-Learning) implies shift from courseware to performance-ware, mouse-and-click to pen and voice interface and centralized server to peer to peer network. Mobile technology, by far, has been the most rapidly adopted technology in history. Today, it is the most popular and extensive technology on the sphere, with the mobile industry expected to grow to \$1.9 trillion by 2015 from the current \$1.5 trillion level. Research suggests the global subscriber base is estimated to increase to 4.6 billion, while the number of mobile connections would reach 9.1 billion by 2015 (Economic Times and GSM Association, 2012).

In the 2011 Horizon Report, mobile computing has motivated into the 'Time-to-Adoption Horizon: One Year or Less' timeframe. This is further underlined by a current report from mobile manufacturer Ericsson, which shows that by 2015, 80% of people accessing the world wide web or Internet will be doing so from mobile devices or tablets. This shift in the means of connecting to the Internet is being enabled by the convergence of three trends: the growing number of Internet-capable mobile devices or

tablets, increasingly flexible website content, and continued improvement of the networks that support connectivity.

Mobile Learning is expected to:

- Help learners to improve their literacy and numeracy.
- Help to learners to retain the learning outcomes.
- Identify areas where learners need help and support.
- Encourage independent and collaborative learning.
- Combat resistance to the use of ICTs and bridge the gap between mobile phone literacy and ICT literacy.
- Help learners to remain more focused and
- Raise self-esteem and self-confidence.

Mobile Learning is now creating a new wave of educational development for maintainable and practical learning option. It is based on the convergence of mobile technologies and wireless infrastructure. These essentially represent a continuum of e-learning based on more sophisticated technologies. Mobile Learning implies different things to different people. Quinn (2000) views it as the intersection of mobile computing and e-learning, whereas Mobil earn (2003) sees it as confluence of ambient intelligence, multimedia, instant messaging (text, video) and distributed databases.

Mobile Learning paradigm promises rich interactivity, total connectivity and powerful processing with capacity for individualized flexible adaptation. It has serious implications for educators, who would be required to develop new courses and revise existing course for delivery on mobile computing devices. However, different devices operate in different ways and different capabilities. The design for these devices therefore has to be flexible to allow e-learning materials to be delivered in heterogeneous computing platforms (mobile devices as well as desktop systems). It would therefore be desirable to incorporate features which provide automatic adaption to different environments through a conversion tool. The client however would be required to provide the software and hardware capabilities of the device to the server. The components of Mobile Learning system include:-

- Authoring tool for content capture and conversion for mobile delivery;
- Simulation templates;
- Mobile Learning management system for registering tracking, downloading content and repository management; and
- Application integration tool.

### **Mobile Learning**

Mobile Learning is a term coined to cover a complex array of possibilities opened up by the convergence of novice 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 Mobile Learning. Consider the following:

1. "Mobile Learning is the intersection of mobile and e-learning: accessible resources wherever you are, strong search capabilities, rich and fruitful interaction, powerful support for effective learning, and performance-based assessment. E-Learning independent of location, time or space" (Quinn, 2000).
2. "A new Mobile Learning architecture will support creation, brokerage, delivery and tracking of learning and information contents, using ambient intelligence, location-dependence, personalisation, multi-media, instant messaging (text, video) and distributed databases" (Mobil earn, 2003).
3. "Three ways learning can be considered mobile "learning" is mobile in terms of space; it is mobile in different areas of life; it is mobile with respect of time" (Vavoula and Sharples, 2002).

In essence these examples represent visions rather than definitions and it may be helpful to comment on the dynamics supporting these statements.

### **Importance of Mobile Learning**

There is a complex array of assumptions and factors inherent in these statements about Mobile Learning and they are captured here in no particular order of importance:

- The crucial common element is the intersection between the use of mobile devices and wireless access. As Singh (2003) says: "Mobile computing relates to the ability to intermingle with the device from anywhere, whereas wireless access describes the communication between computers and devices".
- The concept of delivery and access anywhere, any time is central to the vision.
- The distinction between e-learning and Mobile Learning becomes blurred in much of the analysis.
- Most of the key proponents highlight the promise of rich interactivity, total connectivity and powerful processing.
- Revolution of learning is the ultimate assumption behind the Mobile Learning paradigm.
- The capacity for custom is action and flexible adaptation is constant themes in the current discourse.
- The lifelong learning vision strengthens much of the Mobile Learning debate.
- Pedagogical debate has gained motion - as it has in the e-learning space, but remains problematic.
- Ubiquitous access through the use of mobile devices is perhaps the most persistent driver in the Mobile Learning paradigm.
- The potential return on investment is often cited, although unproved in current practice.
- There is very often confusion between the issues involved in providing mobile device/wireless access in fixed locations such as the classroom and the challenge of providing distributed asynchronous access within dispersed learning communities.
- There is a tendency to reinvent the wheel in terms of many of the issues already addressed in e-learning communities.
- The difficulties of preparing and delivering and evaluating relevant learning content in the form of learning objects is invariably underestimated.
- The need to link Mobile Learning technologies to institutional infrastructure is recognised but, as yet, little explored.
- Convergence of technologies, standards and services is very often assumed but the understanding of how, and when, such convergence will happen remains elusive.
- There is a considerable amount of semantic confusion in the tries to conceptualise the Mobile Learning paradigm.

This brief analysis shows some of the strengths and weaknesses of an emerging paradigm in a fast-moving technical environment.

### Shift Paradigm from E-Learning to Mobile Learning

Table 1.1. Difference between E-Learning and Mobile Learning

Subject	E-Learning	Mobile Learning
Place	Lecture in Classroom or Computer Labs with internet facility	Learning anywhere, anytime with internet facility
Pedagogical Change	Rely on more text and graphics based instructions	Mostly voice based and with graphics and Animation based instruction.
	Lecture in Classroom or Computer Labs with internet facility	Learning occurring without botheration of place, anyplace, anywhere with the help of mobile internet
Instructor to Student Communication	Time-delayed (need to check e-mails or web sites frequently)	Instant delivery of messages and e-mail or SMS
	Passive or one-way	Active and instant communication

	communication	
	Asynchronous	Synchronous
	Fix Scheduled time-table	Anytime and Spontaneous
Student to Student Communication	Face-to-Face mode	Flexible (student can choose)
	Audio-teleconference common	Audio-and video-teleconference possible
	Only e-mail communication	27/4instantaneousmessaging with the help of Web 2.0 tools
	Done from private location	no restriction of geographic boundaries
	Travel time to reach to internet site	no travel time through wireless internet connectivity
	dedicated time for meetings with students	Flexible timingson24/7/365basis
	Less or poor communication due to group consciousness	More and fruitful communication due to one-to-one communication, reduced embarrassments
Feedback to student	Asynchronous and sometimes delayed	Bothasyn chronous and synchronous and quick
	Mass instruction	Personalized instruction
	Benchmark-based grading (Fix grading system)	Performance & improvement-Based grading (Flexible grading system)
	Simulations & lab-based experiments which has less reality	Real-life case sand on the site experiments
	Paper based feedback	Online feedback, which is instant, and using less paper, less printing, lower cost
Assignments & Tests	In-classroom computer	Anywhere and at any location
	Dedicated fix time	24/7/365Prompt (Any time)
	Restricted amount of time (fix time)	Any amount to time possible (No bar of time)
	Standard test for all students	Personal or Individualized tests for each students
	Usually takes time for giving feedback	Instant and quick feedback possible
	Fixed-length tests (Planned)	Flexible-length/number of questions (Unplanned)
Presentations, Exams & Assignments	Theory based and text based exam	Practical oriented exam direction site, hands- on based
	Conduct exam under observation in lab under the monitoring system	Any time exam and observation in the field and monitoring from remote location
	Class-based presentations of all students	1-to-1presentations with much richer communication

	Usually use of one language in which the content deliver	With the language convertible option or Automatic translation for delivery of instruction sin many languages(possible)
	Mostly individualized and single component based group work	Simultaneous collaborative or cooperative group work
	Hand-delivery of assignments and homework at a particular place and time	E-delivery of assignments and homework at any time or place
	Instructor's time used to deliver lectures	Instructor's time used to offer Personalized instruction sand help

### Key Consideration in Mobile Learning

It is only appropriate for Mobile Learning to be adopted for specific learning situations. This makes it authoritative to determine whether Mobile Learning is really needed from a performance, learning and audience perspective. Some important points that help make that choice are:

- **Performance Enhancement**

Mobile has the capability for learning and performance enhancement. Consider whether the capabilities offered by mobile technology can actually increase the learning experience you want to deliver. If your answer at this point is 'no', stop here and consider other options available. Mobile devices can do a lot of things; however they may not be apt for all learning needs or for performance support. Two important questions to ask are: Will it enhance the learner experience or help or assist performance? And will it be effective using mobile technology and its applications for learning?

- **The Capabilities of Devices and Technology**

Determine the capabilities of mobile devices and technology that would actually interest students. It's important that the students/would-be students have an interest in that capability, or any learning associated with the use of that capability just won't happen. A good instance is the use of cameras –most mobile devices today are well equipped with one, and students/would-be students have possibly been exposed to this function during routine use of the device. Ask if the capability (the use of the camera) truly interests the learner and adds to the learning experience.

- **What Content?**

Determine what content is already on hand that could be made easier to access via mobile devices. Prevailing materials that lend themselves to conversion into a mobile format give you distinct benefits in adopting Mobile Learning. Also, when looking for such content, remember to look beyond your regular training department; consult with acknowledged content experts, and look up the recognised power users and leaders. We must mention here that content is not the be-all and end-all of Mobile Learning, the ambit of performance and learning using mobile technology is vast.

- **Administration and Tracking**

Decide how will learning activities or content be administered and tracked. This is typically where the knowledge management or learning management system comes in, and a determination of how it will track these mobile based activities must be made. Tracking activities and content accessed by students can be troublesome as most current Learning Management System (LMSs) do not offer tracking for users accessing services using mobile devices. Secondly, if your Institution requires that programs have SCORM facility/compliance, it complicates matters further as SCORM was not designed for course tracking on mobile devices.

- **Need for Integration**

As with determining tracking of learning activities, one also needs to consider the need for integration of Mobile Learning with established corporate management or human resource information systems. The larger your enterprise or mastery, the more complex the tracking requirements tend to be – this will be one of the driving issues in the design of the Mobile Learning solution.

- **Support Function Analysis**

Decide who will handle user support and how it will deal with issues that emerge while piloting your Mobile Learning initiative. There will be definite need for support, as with any technology initiative, and users will need to have questions answered. While users may be familiar with mobile devices and technology, they will not be conversant with the service/content you require them to use for performance and learning – leading to questions. It might help to prepare help/support documentation in advance and provide this with the Mobile Learning content.

**Challenges of Mobile Learning:**

As we have seen importance and key consideration of Mobile Learning. Along with benefits, numbers of limitations exist, such as lack of theory based and pedagogical underpinnings, sustainable integration into formal educational circumstances, and, especially, lack of teacher support and training (Cochrane, 2012; Peng, Su, Chou, & Tsai, 2009). Here in this paper we have divided challenges in to two parts i.e Technical Challenges and Social and educational challenges.

**Technical challenges for Mobile Learning include:**

- Connectivity and battery life
- Screen size of mobile and key size (Maniar and et. Al. 2008)
- Meeting essential bandwidth for nonstop/fast streaming internet facility
- Number of file and its formats supported by a particular device
- Content security, hacking security or copyright issue from authoring group
- Multiple screen sizes and multiple operating systems
- Frequent changes in operating system
- Reworking existing E-Learning materials for mobile platforms
- Limited memory and fast growing applications (Elias, 2011)
- Risk of sudden uselessness (Crescente and Lee, 2011)

**Social and educational challenges for Mobile Learning include:**

- Accessibility and cost obstacles for end users: Digital divide.
- Methods of learning outside the classroom
- Less knowledge of learning across many contexts
- Issues related to content's security or pirating
- Changes in mobile models/technologies/functionality etc.
- Less understanding of conceptual differences between E-Learning and Mobile Learning
- Design of technology to support a lifetime of learning (Sharples, 2000; Moore, 2009)
- Tracking of results and suitable use of this information
- No restriction on learning schedule & Personal and private information and content
- No demographic periphery
- Interruption of students' personal and academic lives (Masters, K.; Ng'ambi D., 2007)
- Less access and use of the technology in developing countries (Masters, K., 2007)
- Risk of distraction (Crescente and Lee, 2011).

**Conclusion**

In the unfolding knowledge society, it is imperative to create Educated India to enhance our competitive edge. The task is enormous and the challenges are Herculeam. However, creation of learning environments by blending high and low-end technologies suited to a particular context would be helpful since technologies provided a useful interface for offer of education in A-3 paradigm; virtual classrooms, individualised instruction and Mobile Learning are now a reality. In fact, technologies seem to provide solutions to all our genuine concerns for equalisation through massification of education of breaking isolation and improving learning motivation through decentralisation and liberalisation of various provisions. Before joining the flood of implementers trying out Mobile Learning, it is imperative you conduct a thorough analysis of your requirements, plan a framework and then implement the strategy. Do

this correctly, and the chances are your Mobile Learning strategy will be successful and the students in your organisation will see substantial benefits as a result.

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