M-Learning – A Natural Extension of E-Learning

Shital C. Patil

M.E. (IInd Semester)

Department of Computer Science and Engineering

Hanuman VyayamPrasarakMandal's College Of

Engineering & Technology, Amravati

SantGadge Baba Amravati University, Maharashtra,

444602, India

shitalcpatil@gmail.com

Prof. R. R. Keole

Guide

Asst.Professor, Department of Computer Science and

Engineering

Hanuman VyayamPrasarakMandal's College Of

Engineering & Technology, Amravati

SantGadge Baba Amravati University, Maharashtra,

444602, India

ranjitkeole@gmail.com

Abstract: E-learning is form of distance learning where education and training courses are delivered using computer technology. Typically, this means that courses are delivered either via the Internet, or on computer networks. M-Learning is broadly defined as the delivery of learning content to learners utilizing mobile computing devices. Today, the mobile devices have become an integral part of their possessor's life. Learning using the mobile devices has the advantages of receiving educational content at the moment when it is actually needed.Mobile Learning has a strong foundational base when it comes to how the student will learn when there is an interaction of the learning material, technological platform, and the wireless network. Just like wireless technology which was built on numerous technological advances, M-Learning also is a combination or a hybrid of more than one system.But the obstacles such as lack of computer literacy between both the teachers and students populations, their underestimation to the value of such learning technology, the high cost for the inputs of such learning technology, lack of appropriate integrated educational strategies to ensure the adoption of such learning technology were all some of the main obstacles hindering the implementation of such technology in the different educational domains.

Keywords: Learning Technology, E-learning, M-learning, Wireless infrastructure

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1. INTRODUCTION

Technology plays a vital role in defining the present and the future for the quality the individual lives. Technology is one of the most changing factors in the life of individuals, and the change captures the quality of the technological applications in all levels. In the simplest definition, technology is a thinking approach, a style to function, tools to be used to achieve a certain goal, and is one of the cognitive domains to ground the bases of technological applications. The term learning technologies is one of the elastic terms subjected to many interpretations, and this made it hard to define the main elements of such term. This is due to the rapid changes which appear every day in the different domains.

The learning process needs techniques and tools to present the knowledge (from different resources), interact with it and share it with others. E- learning is becoming an important tool to support the learning system to achieve its goal. E- learning became hot topic in the 1990's after the spread of the internet. Although it has a relative short history, it is becoming an important part of the learning. The majority of the universities adopted some kinds of e-learning within its learning system.

The mobility of digital technologies creates intriguing opportunities for new forms of learning because they change the nature of the physical relations between teachers, learners, and the objects of learning. Even the traditions of e-learning cannot offer the flexibility of these new kinds of interaction, so the rise of interest in 'm-learning' is understandable[1].

The majority of previous literature has an agreement that mobile learning is one form of teaching learning processes possessing similarities and differences with e- learning. It is mainly based on the concept of wire and wireless communication technologies, as the individuals learner can access the learning material, lectures and seminars whenever he desires and wherever he was, whether inside the classroom or outside it [2].

M-learning technologies offer exciting new opportunities for teachers to place learners in challenging active learning environments, making their own contributions, sharing ideas, exploring, investigating, experimenting, discussing, but they cannot be left unguided and unsupported. To get the best from the experience the complexity of the learning design must be rich enough to match those rich opportunities.

2. E- LEARNING

E- learning is "The delivery of formal and informal learning and training activities, processes, communities and events via the help of all electronic media like Internet, intranet, extranet, CD-ROM, video tape, DVD, TV, cell phones, personal organizers etc."Because e- learning is less expensive to support and is not constrained by geographic considerations, it offers opportunities in situations where traditional education has difficulty operating. Students with

176

scheduling or distance problems can benefit, as can employees, because distance education can be more flexible in terms of time and can be delivered virtually anywhere.

Popular distance learning technologies include:

- Voice-centered technology, such as CD or MP3 recordings or Webcasts
- Video technology, such as instructional videos, DVDs, and interactive videoconferencing
- Computer-centered technology delivered over the Internet or corporate intranet

Like no other training form, e-learning promises to provide a single experience that accommodates the three distinct learning styles of auditory learners, visual learners, and kinesthetic learners. Other unique opportunities created by the advent and development of e-learning are more efficient training of a globally dispersed audience; and reduced publishing and distribution costs as Web-based training becomes a standard. E-learning also offers individualized instruction, which print media cannot provide, and instructor-led courses allow clumsily and at great cost. In conjunction with assessing needs, e-learning can target specific needs. And by using learning style tests, e-learning can locate and target individual learning preferences. Additionally, synchronous e-learning is self-paced. Advanced learners are allowed to speed through or bypass instruction that is redundant while novices slow their own progress through content, eliminating frustration with themselves, their fellow learners, and the course. In these ways, e-learning is inclusive of a maximum number of participants with a maximum range of learning styles, preferences, and needs.

Advantages of e-Learning

Some of the most outstanding advantages to the trainer or organization are:

- *Reduced overall cost* is the single most influential factor in adopting e-learning. The elimination of costs associated with instructor's salaries, meeting room rentals, and student travel, lodging, and meals are directly quantifiable. The reduction of time spent away from the job by employees may be the most positive offshoot.
- *Increased retention* and application to the job averages an increase of 25 percent over traditional methods [3].
- *Consistent delivery* of content is possible with asynchronous, self-paced e-learning.
- *Expert knowledge* is communicated, but more importantly captured, with good e-learning and knowledge management.
- *Proof of completion and certification,* essential elements of training initiatives, can be automated.

- *On-demand availability* enables students to complete training conveniently at off-hours or from home.
- *Self-pacing* for slow or quick learners reduces stress and increases satisfaction.
- *Interactivity* engages users, pushing them rather than pulling them through training.
- *Confidence* that refresher or quick reference materials are available reduces burden of responsibility of mastery.

Disadvantages of e-learning

E-learning is not, however, the be all and end all to every training need. It does have limitations, among them:

- *Up-front investment* required of an e-learning solution is larger due to development costs. Budgets and cash flows will need to be negotiated.
- *Technology issues* that play a factor include whether the existing technology infrastructure can accomplish the training goals, whether additional tech expenditures can be justified, and whether compatibility of all software and hardware can be achieved.
- *Inappropriate content* for e-learning may exist according to some experts, though are limited in number. Even the acquisition of skills that involve complex physical/motor or emotional components (for example, juggling or mediation) can be augmented with e-learning.
- *Technology issues* of the learners are most commonly technophobia and unavailability of required technologies.
- *Portability* of training has become a strength of e-learning with the proliferation of network linking points, notebook computers, PDAs, and mobile phones, but still does not rival that of printed workbooks or reference material.

3. WIRELESS LEARNING

Wireless learning environments offer many educational possibilities that are not easily achieved in other learning environments. Mobile devices enable both the teacher and students to employ computing power without time or location constraints, while the Internet and wireless technologies enable mobile devices to interconnect seamlessly with each other or with other computing devices. Wireless learning environments have the following features based on seamlessly linking various computing powers with mobile learning devices at hand, including: (1) enhancing availability and accessibility of information networks; (2) engaging students in learning-related activities in diverse physical locations; (3) supporting group work in projects; (4) improving communication and collaborative learning in the classroom, and (5) supporting quick content delivery. M-learning is the wireless learning using different movable devices.

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4. M- LEARNING

The use of wireless, mobile, portable, and handheld devices are gradually increasing and diversifying across every sector of education, and across both the developed and developing worlds. It is gradually moving from small-scale, short-term trials to larger more sustained and blended deployment. Mobile learning has growing visibility and significance in higher education.

Mobile technologies also alter the nature of work (the driving force behind much education and most training), especially of knowledge work. Mobile technologies alter the balance between training and performance support, especially for many knowledge workers. This means that 'mobile' is not merely a new adjective qualifying the timeless concept of 'learning'– 'mobile learning' is emerging as an entirely new and distinct concept alongside the 'mobile workforce' and the 'connected society[4].

4.1 Issues on mobile learning design

The issues on mobile learning designs includes following points

4.1.1 User role and profile

We should also understand that each user employs their mobile device in a different way. For instance, teenagers frequently use SMS to communicate, while professionals are more likely to be using corporate email. This feature – *different user profiles and their roles* in the use of mobile technologies – becomes even more understand that each user employs their mobile device in a different way. For instance, teenagers frequently use SMS [5] to communicate, while professionals are more likely to be using corporate email. This feature – *different user profiles and their roles* in the use of mobile technologies – becomes even more The context is the surrounding user roles and society at large that are not directly involved in the learning experience, but still influence it in indirect and complex ways [4].

4.1.2 Media types

Successful mobile applications tend to employ many rich *media* objects [6], yet they should not distract from the learner's experience. One of the commonly stated characteristics of M-learning content is that it should bedelivered in short 'nuggets' rather than large units of information, which can be supported by appropriate use of different media types. These media types should support content appropriately.

4.1.3 Learning on the move

There is also a new direction in M-Learning that gives the instructor more mobility and includes creation of on the spot and in the field learning material that predominately uses smart phone with special software such as AHG Cloud Note. The most important feature in the mobile environment is *mobility* itself. It enables us to be in contact while we are outside the reach of conventional communication spaces. Mobility can be conceptualised in different ways, i.e., mobility of the user, mobility of the device, and mobility of services, and these three aspects should be addressed both technically and contextually [4]. Thus learning on the move becomes easy.

4.1.4 Interface design

The important issue in mobile learning design is interface design. This phase makes productive use of the affordances of mobile devices and technologies suchas e-books, classroom response systems, handheld computers in classrooms, datalogging devices and reusable learning objects. And the devises should contain visualization software (Map) , mobile software, and avoid information overload.

4.1.5 Collaboration support

The most promising feature of M-learning contexts is that one can collaboratively perform *activities*. Of course individual learning activities should be addressed in m-learning, but the collective learning experience can be enhanced by mobile systems. Such *collaboration* can take many forms. It may take place in a classroom or be a remote connection to a 'live' tutor. Two-way interactions support the essential characteristics of a shared learning environment, and these virtual learning communities are good for both the organization and the learner

4.2 How mobile learning is dependent on e- learning:

Mobiles' learning is now considered a complementary e- learning model to complement the current practices in education. The objective of M-learning is to provide the learner the ability to assimilate learning anywhere and at any time [2].Some of the knowledge that instructional designers use for e-learning will be useful for creating mobile learning content. The term covers: learning with portable technologies including but not limited to handheld computers, MP3 players, notebooks, mobile phones and tablets.

M-learning focuses on the mobility of the learner, interacting with portable technologies, and learning that reflects a focus on how society and its institutions can accommodate and support an increasingly mobile population.Using mobile tools for creating learning aides and materials becomes an important part of informal learning. M-learning is convenient in that it is accessible from virtually anywhere. M-Learning, like other forms of E-learning, is also collaborative. it is distinct in its focus on learning across contexts and learning with mobile devices.

The use of mobile devices in learning is referred to as mobile learning (m-learning): this is the delivery of electronic learning (e-learning) materials on mobile devices such as personal digital assistants (PDAs), mobile phones, Tablet PCs, Pocket PCs, palmtop computers, etc. Quinn (2000) defined mobile learning as 'the intersection of

178

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mobile computing and E-learning: accessible resources wherever you are, strong search capabilities, rich interaction, powerful support for effective learning, and performance-based assessment.When designing learning materials for mobile devices, proper learning theories and instructional design principles must be used to meet learners' needs, and at the same time, help learners to achievethe desired learning outcomes.

4.3 Mobile learning versus e- learning

Mobile learning is differ than e-learning in following points

1. Subset : E- learning is the subset of distance learning while m- learning is the subset of e- learning.

2. Nature of devices : For e- learning fixed, wired devices are used while in the m-learning the mobile devices are used like mobile phones, laptops etc.

3. Accessing the internet : In e- learning, access to the internet isachieved the available telephone service,while mobile learning uses IR whenaccessing the internet anywhere at anytime [2].

4. Exchanging the files : In e –learning, it is difficult to transfer books and files between individual learners, while in mobile learning, Bluetooth and IR technologies are used to exchange books and files among learners.

5.Communicationchannels : Communication channels used in e-learning have low protection levels as learners use more than one device, while mobile learning provides users with more protection as learners use their own devices to connect with others[2].

6.Learning : E-learning provides lectures in classroom or internet labs but m-learning provides learning anytime anywhere

7. Time : E-learning needs travel time to reach to internet site but no time with wireless internet connectivity.

4.4Legal, ethical & security issues

Mobile learning will bring some of the same legal, ethical, and security issues as the computer. These issues come with the territory of the internet. Mobile learners should beware of leaving trails and tracking. Also privacy can be affected because just like people can hack into your information through your computer they can do the same with your mobile device. There is a lot of personal information kept on people's mobile advice such as dates, contacts, to do lists, appointments, birthdays, etc.

5. ADVANTAGES

There are many benefits to delivering learning and support via mobile devices. These include:

(1) Convenience and flexibility: mobile learning can be accessed anywhere, at any time: at the exact moment learning is required.

(2) Learner control: the always-available nature of mobile learning empowers learners to take the initiative and direct their own learning activities.

(3) Good use of 'dead time': mobile learning can happen during 'dead time', while travelling or waiting for a meeting to start.

(4) Fits many different learning styles: reading (text and graphics), video, animation, working through decision trees, listening to podcasts, contributing to discussions (forums or SMS), researching on the internet, choosing the correct answer (text or photograph), rating skills on a diagnostic… are all means for offering learning on mobile devices.

6. CONCLUSION

Mobile learning is a hot new item that will continue to gain popularity based on convenience. The fact is that convenience is everything in today's busy society and will continue to be in generations to come. Mobile learning opens so many doors to new technology and will continue to get more complex as the years go on. So many more opportunities are being giving to get an education and to expand your knowledge. This is a great way to help people learn better. In particular, it is important to understand learners' previous and current use of technologies and the wider context in order to start to unravel what might motivate them in using mobile devices for their learning.

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