m-Learning: Trend In Education

Prof Varsha Sharma

Assistant Professor
Department of MCA,
Bharti Vidyapeeth's Institute of
Management & Information
Technology,
C.B.D. Belapur, Navi Mumbai,
India

Prof Jyoti Kharade

Assistant Professor
Department of MCA,
Bharti Vidyapeeth's Institute of
Management & Information
Technology,
C.B.D. Belapur, Navi Mumbai,
India

Prof Mlind Kadam

Assistant Professor
Bharati Vidyapeeth's Institute of
Management Studies and
Research
C.B.D. Belapur, Navi Mumbai,
India

Abstract:
One of the options in Information Communication Technology (ICT) is possible usage of mobile technology in education. Mobile learning is defined as the provision of education and training on mobile devices: Personal Digital Assistants (PDAs), smart phones and mobile phones. The paper describes the scope, status and issues involved in mobile learning. The paper also propose conceptual model for mobile based e-Learning.

Keywords: Information Communication Technology (ICT), e-Learning, mobile technology, m- Learning.

I. Introduction

Among all the ICT tools available today, mobile phones has been the most popular and widespread personal technology rapidly adopted all over. The growth of the mobile technologies on a global scale is obvious from the appearance of a variety of new devices on the market, increases the need to create appropriate methods of research to understand the state of play and to design possible applications for education.
The availability of mobile and wireless devices is enabling different ways of communicating.

Kambourakis, Kontoni, and Sapounas (2004)[6] define m-Learning as being, "The point at which mobile computing and e-Learning intersect to produce an anytime, anywhere learning experience".

The advent of mobile technologies has created opportunities for delivery of learning via devices such as PDAs, mobile phones, laptops, and PC tablets. A wide definition of m-Learning is the ability to learn independently of place and time, facilitated by a range of mobile devices [1].
One of the characteristics of mobile learning is that it uses devices which citizens are used to carrying everywhere with them, which they regard as friendly and personal devices, which are cheap and easy to use, which they use constantly in all walks of life and in a variety of different settings for learning.

If one looks into the comparative figures of users of Internet and mobile, it can be understood that mobile could be the best possible media for communicating quick and small chunks of information to the learners. Mobility of the media with the user without much technological pre-requisites is a crucial aspect of the mobile which goes much ahead of Internet. This particular aspect has tremendous implications in operational activities of distance education. The four elements of flexible learning according to [2] are accessibility, choice and control, responsibility and support. But for this the utilization of technology is must, which is no more a learner's choice and acceptance of the same is a challenge for some. To survive in the digital world these 'immigrants' into the digital world have to adapt to the new digital environment [3].

II.   Objectives

1. To study role of mobile technology in education.
2. To study the status of m-Learning in India.
3. To study the issues involved in mobile Learning.
4. To propose the conceptual model for mobile based e-Learning

III.   Literature Review

Although mobile learning policies are typically absent at the national level, a number of policies have emerged at the local and regional levels. Local policies often determine how learners are allowed to use mobile technologies on school or university grounds. These rules are commonly organized under the heading of Acceptable Use Policies (AUPs). The AUPs of many institutions strictly prohibit the use of mobile devices on campuses or in classrooms[19]. However, given that mobile technologies play an increasingly central role in the daily lives of people around the world, it seems unlikely that institutions will be able to sustain this approach [4].

UNESCO believes that information and communications technology (ICT) has great potential to facilitate knowledge dissemination, improve learning and assist the development of more efficient education services[18].

ICT can extend educational opportunities to marginalized groups; increase education quality; and reduce inequalities based on gender, class, race, age and disabilities[24]. Majority of people can afford to buy personal ICT in the form of mobile devices, in particular mobile phones. At the end of 2011 there were almost 6 billion mobile phone subscriptions worldwide [5]. Increasingly growth is driven by developing countries, which accounted for over 80% of new mobile subscriptions in 2011 [7].

These and many other educational and administrative benefits of mobile technologies are described in the UNESCO Working Paper Series on Mobile Learning [9];[10];[12]; [13];[14];[15].

As increasingly powerful mobile devices continue to saturate rich and poor communities alike, advances in mobile learning are likely to accelerate. A growing number of initiatives are demonstrating ways in which mobile phones can help confront existing educational challenges and pioneer new strategies for learning[16].

Designers of mobile learning projects are sharing best practices and carving out more sustainable models of implementation, moving away from the many small and short-lived pilot projects of the early 2000s. Simultaneously, the prices of mobile devices and services are plummeting around the world. Just a decade ago a mobile phone was appropriately seen as a luxury item; today it is generally considered a staple of day-to-day life in communities. The research and trends suggest that with appropriate implementation, mobile technologies are poised to significantly impact the education of billions of people.

Advocates of mobile learning emphasize that mobile technologies are not intended to replace educational interactions or learning experiences but rather complement and enrich them[17].

When it comes to ICT in education the choice is not 'either or' but 'both and'. Wherever possible, programmes should use a range of ICTs, each for what it does best. Of course, because resources are limited, choices must be made about which ICT to invest in. It is important, though, not to focus on one ICT to the detriment of others.

IV.   Need of m-Learning

Collective advancements in technology coupled with increased accessibility to these technologies are enabling new opportunities to personalize the learning experience for many more students both efficiently and effectively.

As mobile devices become increasingly prominent worldwide, there is a great deal of excitement building around mobile learning. Students and teachers are already using mobile technologies in diverse contexts for a wide variety of teaching and learning purposes, and key educational players from national education ministries to local school districts are experimenting with supportive policies to promote innovative mobile learning in both formal and informal education settings.

Mobile phone can be utilized for better teaching learning process. Using multimedia applications available in Mobile phones can result in the increasing retention rates, because people remember 20% of what they see, 40% of

what they see and hear, but about 75% of what they see and hear and do simultaneously [22]. The use of the mobile devices in Teaching-Learning process gives opportunity for students to interact with each other and with the teacher using the mobile devices. Mobile phone has the potential to remove the barriers that are causing the problems of low rate of education in any country. It can be used as a tool to overcome the issues of cost, less number of teachers, and poor quality of education as well as to overcome time and distance barriers [21]. There are various types of Mobile phones and applications available which can be utilized for the knowledge creation and dissemination in the modern world. The interest in mobile learning has come from a number of places. These are as follows:

- Advances in technology and high levels of mobile phone penetration have made mobile devices the ideal targets for mobile learning applications;
- It is as important to have behavioral change as well as technological change; social norms are rapidly evolving and for most people the benefits of the mobile phone now outweigh its disadvantages. Educators need to tap into the new behaviors and technologies rather than trying to change or resist them.
- Participants coming to business schools have their own mobile devices and there is a need to provide more flexible opportunities for study that build in some choice in how participants will use technology.
- Participants have increased expectations and are depending on technology to help them fit learning into their complex, demanding lives.
- Mobile devices offer an effective way of increasing participation and engagement.
- Mobile devices can support pre and post-programmed learning.
- Busy participants can use their mobile devices to extend their opportunities to learn.

V. Status of m-Learning in India

m-Learning in India at present is still in its infancy. However, the future promises to be an exponential market.

There exists future possibility for this market to register double-digit growth.

With over 5.9 billion mobile phone subscriptions worldwide, mobile devices have already transformed the way people live. But even though people around the globe rely heavily on mobile technology, educators and policy-makers have yet to tap its full potential to improve learning. The next decade and beyond could be transformational in incorporating mobile technologies in both formal and informal education to better meet the needs of learners and teachers everywhere.

With changed Government policy on liberalization for country's growth and development, India has seen phenomenal growth in the Telecom sector which typically considers telephone and computers.India stand second after China in the telecom sector . It is seen that over the last three years, the Telecom sector has grown remarkably in the range of 29% to 47%. Like any other parts of the world, the principal driver for Telecom growth in the country was the growth in mobile phones.

According to Telecom Regulatory Authority of India (TRAI), as on March 3, 2010, the Total Telephone subscriber base reached 621.28 Million in which Wireless subscription base increased from 563.73 Million in February-2010 to 584.32 Million at the end of March-2010, and Wireline subscriptions remained the same at 36.96 Million.

In other words in this period there was 20.31 Million new additions in wireless registering a growth of 3.60%. However the overall Tele-density in India reached 52.74 and Wireless Tele-density stands at 47.91 Compared to this the broadband subscription in this period was just 8.75 million.

The current trend in mobile phone penetration makes it virtually certain that not too far in the future all of the student community in India, will possess a mobile phone. Moreover the feature of being able to connect any time anywhere makes the mobile phone to be a viable and feasible personal technology for the learners. This is a sufficient reason and motivation to explore the possibility of making the mobile phone an important tool in the educational systems of developed and developing countries.

VI. Key Issues in Using Mobile Technology

Mobile learning is new in education hence it is important for educators, researchers, and practitioners to share what works and what does not work in mobile learning so that the field of mobile learning can be implemented in a more timely and effective manner. Mobile devices are changing constantly with increasing capabilities and there is not enough time for everyone to conduct research and complete projects to learn about the best practices in mobile learning [23].

Learning and teaching with mobile technologies is beginning to make a breakthrough from small-scale pilots to institution-wide implementations [11]. In order for these implementations to be successful, educators and technology developers must consider the following key issues:

- **Context:** gathering and utilizing contextual information may clash with the learner's wish for anonymity and privacy.
- **Mobility:** the ability to link to activities in the outside world also provides students with the capability to 'escape' the classroom and engage in activities that do not correspond with either the teacher's agenda or the curriculum.
- **Learning over time:** effective tools are needed for the recording, organization and retrieval of (mobile) learning experiences.
- **Informality:** students may abandon their use of certain technologies if they perceive their social networks to be under attack.
- **Ownership:** students want to own and control their personal technology, but this presents a challenge when they bring it in to the classroom. [8].

VII. Challenges Of m-Learning

However, the success of m-Learning is also limited to the hardware and software constraints of mobile devices [20]:

- The access to ICT facilities whether by students or by teachers is of great concern in India. There are limited resources for buying Mobile phone, books, stationery, furniture and other classroom materials.
- All teachers are not willing to introduce new technologies to themselves first and subsequently to their students. Another barrier is lack of trained teachers to exploit ICT proficiently.
- Rural population may not be able to pay hefty amount to utilize such ICT resources for education.
- Mobile phones are designed for talking and hence one of the major challenges in the implementation of ICT in education is the initial thinking that is based on the technology.
- Major challenge for educators and trainers is how to develop learning materials for delivery on mobile devices.
- Low bandwidth available for mobile phone is not going to serve the purpose.
- Compatibility and interoperability of software and educational applications is also of great concern.
- Small screen size and keys are difficult to use effectively, also there is additional strain on battery life imposed by mobile apps can be frustrating.

VIII. Conceptual framework for m-Learning

Our learning environment provides an interoperable, pervasive and seamless learning architecture to connect, integrate and share three major dimensions of learning resources:

To understand these dimensions, the conceptual framework for m-Learning is proposed given in the following figure (Fig.1).

Presentation layer: In this tier the user interface has to be built to display data to the user or accept input from the user through mobile browser. It will contain controls like text boxes, dropdown lists, grid views and labels and various applications available on mobile devices.

Business Logic layer: It serves as an intermediary for data exchange between the presentation layer and the storage layer. It handles various activities like content rendering, user tracking and context delivery
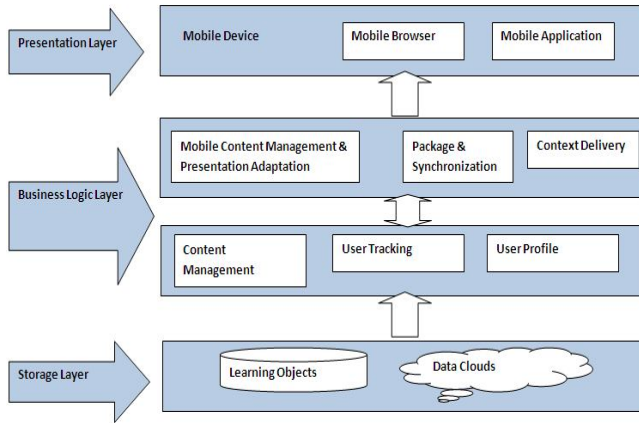
Fig-1

Storage layer: In this layer the data is stored in the database back and forth. It will get the data from the business layer and send it to database. Data cloud is also maintained for the faster & efficient access of data for m-Learning

IX. Conclusion

Rapid growth in technology drives the society to find faster and more inventive ways to utilize previously unproductive time. With an increasing requirement to conduct learning activities independently, the ability to read, comprehend and understand learning processes, will be key factors in successful development and ability to function in the 21st century. These requirements and skills can be improved through the use of m-Learning. The Indian educational industry is in evolving stage. India might well be one of the leading countries to adopt m-Learning in coming years owing to the number of young users. 'm-Learning' will be the next big wave, which will revolutionize the education in India.

X. References

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