NEW APPROACHES IN LEARNING: E-LEARNING, M-LEARNING

AND U-LEARNING

Deepak Jaiswal

Teacher, P.V. Amkhera, Post – Bahanpur,

Block – Marauri, Pilibhit – 262001 (U.P)

Abstract

In present scenario E-Learning and M-Learning is one of the important aspect of learning process which has enormous implication in the present education system. But in a country like India, which is not free from technical as well as social and educational challenges. Over the post ten years, M-Learning has grown from minor research interest to set significant projects in schools, higher education, workplace etc around the world. This paper also describes a new learning paradigm known as ubiquitous learning or U-Learning. Which is supported by the ubiquitous computing technologies? Instead of that, the paper also aims at providing particular information related to U-Learning for researchers who are interested in venturing this new area of ubiquitous computing. The U-Learning definition and characteristic are discussed. Finally some of the U-Learning applications are explained to further enhance the understanding of U-Learning concept.

Key word: E-learning, M-learning & U-learning

Introduction

Arrival of computer and internet in the field of education has changed the procedures and patterns of learning. Now learning patterns knocks at the door of students or learners. Today anyone learns anywhere, anytime. Latest information and content is available at low cost. New technological term replaced old terms such as – Banking into e-banking, Money into e-money, Commerce in to -ecommerce, Governance in to e-Governance, Education in to e-education, Learning in to e-learning. And say that today's our life change in to e-life etc. E-learning is anew sensation in the field of education.

Many terms have been used to define e-learning in past-web based training, web based learning and online-learning. E-learning was first called internet based training then web based training. Today we find these terms being used along with variation of e-learning (Jugon.2003) in this paper researcher describes a new learning paradigm known as M & U learning which is supported by the Ubiquitous Computing Technologies.

Objectives

We study the new approach of learning in field of education i.e. e-learning, M-learning
We would study new learning paradigm Ubiquitous learning or U-learning.

Meaning of e-learning

E-learning is a term that means something different to almost everyone who uses it. Some use the term to refer to packaged content pieces and others to technical infrastructures. Some think only of web-based self-study while other realizes e-learning can encompass real time learning and collaboration. Almost all agree that e-learning is an effective method that should be blended in to a corporation's current learning mix. E-learning refers to the use of internet or wireless technologies to deliver a broad array of training solutions.

In 2001 Marc Rosenberg suggested that "the use of internet technologies to deliver a broad array of solutions that enhance knowledge and performance". The American society for training and development (ASTD) defines e-learning, "As a broadest of application and processes which includes web-based learning, computer based learning, virtual classroom and digital" about elearing.com. Anon (2006) defines e-learning is essentially the network enabled transfer of skills and knowledge. E-learning includes learning that has an electronic component in its delivery. For instance online learning or distributed learning where e-mail or video conferencing or digital formats are used.

e-learning can reach an unlimited number or people virtually stimuli tenuously. ……………Everyone gets the same content, presented the same way. Yet the programs can also be customized for different learning needs or different groups of people.

In other words we can say that e-learning provides the potential to provide the right information to the right people at the right time and places using the right medium.

Thus the term e-learning can be summarized in a single statement deliverance of education or any learning via any electronic means. There are two main types of e-learning.

Type of e-journey

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(i) e-journey: e-journey is basically related to internet. It is tour of website your search, you explore the web for what you want. It is training. This program takes the learner through various data providing sites and allow him to select what he thinks is better for him.

(ii) Blended learning: Blended learning is more modern approach to words e-learning. It includes the use of all models of e-learning which includes internet as well as products like CD Rom etc.

Characteristics of e-learning: Some important characteristics of e-learning are as follows.

Large mass covered, Flexible learning, More planned and organized system of learning, Reduces students indiscipline and unrest problem, Environment friendly and economic, Error free and speedy technology, Larger autonomy, Effective and efficient learning, Transparent and authentic system of educator.

Meaning of M-learning

M-learning is the idea that a student can learn from any place at any time using portable learning devices. M-learning or 'mobile learning' is any sort of learning that takes advantages of learning opportunities offered by mobile technologies. In other words, mobile learning decreases limitation of learning location through the mobility of portable device. M-learning is convenient in the sense that it is accessible from virtually anywhere, which provides access to all the different learning materials available. It is also collaborative, sharing is almost instantaneous among everyone using the same content, which leads to the reception of instant feedback and tips. M-learning also bring strong portability by replacing books and notes with portable devices filled with tailored learning content. While there are some great advantages afforded by mobile learning, there are can be problems when m-learning is not designed well. As mobile devices become more and more powerful it will become easier to design effective mobile learning.

M-Learning involves learning anywhere with no need to physically connect to an out let. There is also a focus with the latest technology of e-learning being delivered with "just in time", "just enough" and "just for me" concepts. According MoLeNET, "The exploitation of ubiquitous handheld technologies, together with wireless and mobile phone networks, to facilitate, support, enhance and extend the reach of teaching and learning". Polsani (2003) defines "mobile learning as a form of education whose site of production, circulation and consumption is the network". Traxler (2005) defined it as "any educational provision where the sole or dominate technologies are hand held and palmtop devices." Most researcher and educators probably view mobile learning as the immediate descendant of e-learning. In other word we can say that m-learning provides the potential to provide the right information to right people at the any time and any place using portable learning devices. Thus the m-learning can be summarized in a single statement – **"deliverance of education or any learning via any portable devices".**

Characteristics of m-learning

Accessibility - The information is always available whenever the learners need to use it.

Immediacy   - The information can be retrieved immediately by the learners.

Interactivity - The learners can interact with peers, teachers and experts efficiently and effectively through different media.

Context-awareness - The environment can adopt to the learners real situation to provide adequate information for the learners.

Permanence - The information remains unless the learners purposely remove it.

Most of mobile devices have lower prices than desktop PCs.

Similar size and light weight than desktop PCs.

Ensure bigger students engage as m-learning is based on modern technologies, which students use in everyday life.

Using GPS technology the m-learning can provide location depend educator.

Types of M-learning: The main types of mobile devices for m-learning used in education process are.

Note Book computers – From one hand they have such abilities as desktop personal computer, from the other hand they small sizes and support wireless communications. Their prices are still high.

Tablet PC – These are one of newest mobile devices. They also have full range of abilities as personal computers. Some of them have not keyboard but have software to recognize hand written text. It is relatively expansive.

Personal Digital Assistance (PDA) – They have small sizes and significant processor power. The main operating system used are palm and Microsoft pocket PC.

Cellular Phones – The low class devices mainly can be used for voice communication and sending and receiving of text message (sms). Some of their disadvantages are low memory capacity and low data transfer rate. Cellular phones can be higher class can be used to internet access via WAP or GPRS technologies. Their price continuously decreases.

Smart Phones - They are hybrid devices which combine the abilities of cellular phones and PDA. They have smaller sizes than PDA and bigger than cellular phones. They use Symbian, windows mobile or other operating system. As they have internet browsers. They have potentiality to be successfully used in the mobile multimedia education. Today there several communication technologies which are used in mobile devices. Their ability vary vastly –

Global System for Mobile Communication: (GSM) is one of the leading digital cellular system. GSM has become the world's most widely used mobile system in use in over 100 countries. It provides integrated voice mail, high speed data, fax, paging. It offers the best voice quality of any current digital wireless standard.

Wireless Application Protocol (WAP) – This is a free unlicensed protocol for wireless communication. It makes possible creation of advanced communications services and access to internet pages from cellular phone.

General Packet Radio Service (GPRS) – A packet-linked technology that enables high speed wireless internet and other data communications GPRS Provides about four time greater speed than conventional GSM system.

Bluetooth – Wireless technology is short range radio technology. Bluetooth makes it possible to transmit signals over short distance between telephones computers and other devices and there by simplify communication and synchronization.

IEE802.11 is a type of radio technology used for wireless local areas network (WLANs).

U-Learning as Learning Strategy

In e-learning, learning is confined to single desk while in u-learning, it is very much flexible. U-learning is 24 X 7 type learning. So, now i will explain Ubiquitous Computing or u-computing which is combination of e-learning and m-learning. The term ubiquitous computing was first coined by the late Mark Weiser; a researcher at Xerox Palo Alto Research Center (PARC) in the late 1980's which refers to the process of seamlessly integrating computers into

the physical world. Mark Weiser in 1991 stated that '**the most profound technologies are those that disappears…..'.** Ubiquitous learning can be considered as the new hype in the information and communication world. It is normally associated with a large number of small electronic devices (small computers) which have computation and communication capabilities such as smart mobile phone, contactless smart cards, handheld terminals, sensor network nodes, Radio frequency IDentification (RFIDs) etc which are being used in our daily life (Sakamura & Koshiz uka 2005). These small computers are equipped with sensor and actuators, thus allowing them to interact with the living environment. In addition to that, the availability of communication function enables data exchanges with in environment and devices. In the advent of this new technology, learning styles has progressed from electronic learning (E-learning) to mobile learning (M-learning) and from mobile learning to ubiquitous learning (U-learning). The most significant role of ubiquitous computing technology in U-learning is to construct a ubiquitous learning environment, which enables anyone to learn at any place at any time.

In U-learning students learns automatically within the u-space or U.L.E. or **Ubiquitous Learning Environment.** In the U.L.E., each student carries a wireless device (Personal Digital Assistance PDA's or mobile phone) fitted with headphones, Sensor helps the ULE server module to track and locate each student within the u-space. When the student approaches an object, then data from that object transmits to the students handheld device. Ubiquitous technology plays a major role in all aspects of R & G (Robotics & Games) research. In the u-learning mode/system, based on the educational activities & on the location & time of interactions, there are three types of learning modes-Synchronous, Asynchronous & hybrid mode.

U-Learning

Ubiquitous learning or u-learning is a new learning paradigm. It is said to be an expansion of previous learning paradigms as we move from conventional learning to electronic-learning (e-learning) and from e-learning to mobile learning (m-learning) now we are shifting to u-learning. According to Lyytines & yoo (2002). "The evolution of ubiquitous computing has been accelerated by the improvement of wireless, telecommunication capabilities, open network, continued increases in computing power, improved battery technology and the emergence of flexible software architectures." Hwang (2008) there is no clear definition of u-learning due to rapid changes of learning environment until now, researches have different views in defining the term "u-learning". A broader definition of u-learning is 'anywhere and anytime learning". The definition is referring to any environment that allows any mobile learning devices to access the learning and teaching contents via wireless networks in any location at any time.

U-learning is a learning paradigm which takes place in a ubiquitous computing environment that enables learning the right thing at right place and time in the right way.

Examples of U-learning

An exclusive article entitled **Chinta Chhodo, Chip Se Jiyo"** which was published in Amar Ujala newspaper on dated 29th march, 2012 on Hi-Tech page highlighted the SMART-UNIFORM experiment of a Brazillan school which is also based on u-computing. In this school, students wear the Smart Uniforms in which Sensors are fitted in such a manner that when

students reaches the entry gate of their schools, electronic readers read their presence along with arrival time and informs their positions to their parents by sms. **-R.Jason Weiss & J Philip Craiger** explained the importance of Ubiquitrain System which is based on a database of training content to which users connect via desktop computers & wireless handheld devices.

An **Intelligent Fractions Learning System-A Conceptual Design by Teemu H.Laine, Andrew Cyrus Smith and Thato Foko.** In this system, U-fractions in ULE which combines mobile technology, tangible fraction blocks & a story based game into a mathematical learning experience.

Another example of u-learning is **Computer Supported Ubiquitous Learning Environment for Vocabulary Learning Using RFID Tags by Hiroaki Ogata, Ryo Akamatsu, and Yoneo Yano.** It provides Computer Assisted Language Learning (CALL) in U.L.E. They called it TANGO (Tag Added Learning Objects) system. In this model, the system detects the objects around the learner using the RFID (Radio Frequency identification) tags and provides the learner the right information regarding language learning.

There are much finest examples of U-learning system. Now, U-learning environments can be set up with the help of the Educationists & the software/hardware engineers. On the basis of Socratic Method of teaching, the subject matter of the different subjects can be split into short questions and very short answer from booklet. Traditional learning environments can be translated into digital format by providing the students PDA's like palmtop, pocket pc, tablet pc, laptop etc and expanding wireless infrastructure by providing technical experts to school. Battery charging problem of Handheld Devices restricts the wide expansion of U-learning. Solid solution to battery charging is yet to be found by inventing wireless energy transfer which is now at testing stage. Govt. must create innovative Digital Learning Environments & redesign classroom architecture by replacing Government Management from Govt. schools by N.G.O.s to increase the efficiency of institutions. Students may be directed to set up some National of World record without taking any risk to his/her own life. It will make them enthusiastic that is the pre-requisite for good learning. The variety of prizes in disciplines of regularity, punctuality creativity may be introduced not only to students but to teachers too to have properly motivated students and teachers.

Conclusion

Although it is true that all the approach of learning i.e. E,M & U learning can raise the level of educational development and in Indian scenario it can be very useful for all the level of education as well as teacher education department also. But the question is that; are the people of India ready for this type of learning. The first challenge in the path is to change the attitude and mentality of person. The second challenge concerns funds. It is not possible for Govt. as well as people of India do invest huse amount of education to get through ubiquitous computing technologies. Although it is very difficult for Indian concern but if we accept this type of learning approach than many problem in the field of education i.e. student unrest, lack of teachers, wastage and stagnation can be easily solved.

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