Role of ICT in Digital Learning &Teaching Aspects

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Abstract- Information and communication technology (ICT) has become one of the basic building blocks of modern society within a very short time. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education. Terms used in Information Communication Technologies refers to the computer and internet connections used to handle and communicate information for learning purpose. E-learning is a learning program that makes use of an information network- such as the internet. This paper is based on secondary data. Moreover, Most of the people recognize ICTs as catalyst for change; change in working conditions, handling and exchanging information's, teaching methods, learning approaches and in accessing information. We have reviewed some articles, websites and some research papers also. This paper will find out how ICT plays a important role in providing quality education system as compare to earlier days, the benefits of ICT in education system, the limitations and challenges of ICTs integration to education system. This Research paper will discuss about the role of ICT in Teaching and Learning Aspects.

Keywords: ICT, Internet, E-Learning etc.

I. INTODUCTION

Information Technology has become a buzzword while talking about technology and its applications. It is used in various business and management functions but not in the improving the quality of education. Quality of education has been issue of concern in the absence of standard parameters of to measure the quality.

The Set of tools, processes, and methodologies (hardware, software, and the programming) to required or used in acquiring, storing, processing and displaying data and information is collectively known as Information Technology. On other hand, many developments and achievements took place in communication technology. Hardware, know how, programs and the methods used in ensuring that message is transmitted correctly, efficiently and cost effectively are collectively known as Communication Technology (CT). Both of these technologies became complementary to each other means progress in one alone is not much beneficial. Hence IT and CT started moving together and a new term was coined named as Information and communication Technology. Convergence of these two technologies gave birth to ICT.

ICT refers to technologies that provide access to information through telecommunications. It is similar to Information Technology, but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums. ore, and manage information."

Web-based learning is a subset of e learning and refers to learning using an internet browser such as the Moodle, Google Chrome or Internet Explorer. Blended Learning refers to learning models that combines the face-to-face classroom practice with e-learning solutions. For example, a teacher may facilitate student learning in class contact and uses the moodle (modular object oriented dynamic learning environment) to facilitate out of class learning. Open and distance learning is defined by the Commonwealth of Learning as "a way of providing learning opportunities that is characterized by the separation of teacher and learner in time or place, or both time and place; learning that is certified in some way by an institution or agency; the use of a variety of media, including print and electronic; two-way communications that allow learners and tutors to interact; the possibility of occasional face-to-face meetings and a specialized division of labor in the production and delivery of courses."

II. OBJECTIVES

The main objectives of our research study are given as below:

1. To clear all the Aspects of Information and Communication Technology towards its users
2. To identify the present use of Information and Communication Technology in Teaching Pedagogy etc.

III. LITERATURE REVIEW

The National Policy on Education 1986, as modified in 1992, stressed the need to employ educational technology to improve the quality of education. The policy statement led to two major centrally sponsored schemes, namely, Educational Technology (ET) and Computer Literacy and Studies in Schools (CLASS) paving the way for a more comprehensive centrally sponsored scheme – Information and Communication Technology @ Schools in 2004. Educational technology also found a significant place in another scheme on up gradation of science education. The significant role of ICT can play in school education has also been highlighted in the National Curriculum Framework (NCF).
In Watson's (2001) description, Information and Communication Technology have revolutionized the way people work today and are now transforming education systems. As a result, if schools train children in yesterday's skills and technologies they may not be effective and fit in tomorrow's world. This is a sufficient reason for ICTs to win global recognition and attention. For instance, ICTs are dependable tools in facilitating the attainment of one of the Millennium Development Goals (MDGs) which is achievement of universal primary education by the year 2015. Kofi Anan, the former United Nations Secretary General, points out that in order to attain the goal of Universal Primary Education by the year 2015. This indicates the growing demand and increasingly important place that Information and Communication Technology could receive in education. Since ICTs provide greater opportunity for students and teachers to adjust learning and teaching to individual needs, society is forcing schools to give appropriate response to this technical innovation.

The Information and Communication Technology in schools have been subsumed in the Rashtriya Madhyamik Shiksha Abhiyan (RMSA). Now ICT in Schools is a component of the RMSA. The

Information and Communication Technology in Schools was launched in December, 2004 and revised in 2010 to provide opportunities to secondary stage students to mainly build their capacity on ICT skills and make them learn through computer aided learning process. The Scheme is a major catalyst to bridge the digital divide amongst students of various socio economic and other geographical barriers. Use of ICT for quality improvement also figures in Government of India's flagship programme on education, Sarva Shiksha Abhiyan (SSA). Again, ICT has figured comprehensively in the norm of schooling recommended by the Central Advisory Board of Education (CABE), in its report on Universal Secondary Education, in 2005.

The Ministry of Human Resource Development (MHRD), Government of India invites nominations for the National ICT awards for the year 2015 from all States/ UTs and Autonomous Educational Institutions under MHRD. In all 87 ICT awards are instituted. The scheme proposes to felicitate those teachers who have contribution in enhancing student learning by effectively and innovatively integrating technology supported learning into the school curriculum and subject teaching, and thereby promotes enquiry-based cooperative and collaborative learning using ICT. The scheme also recognizes teacher's contribution to overall quality of education in schools and the community.

Education system includes formal and Non-formal forms of education at various levels of education. Teaching is imparting knowledge or skill whereas learning is skill acquisition and increased fluency. Usage of ICT is one of the way by which India's large population base can be effectively reached. Moreover in enhancing the quality and delivery of services through ICT-especially in case of developing relations with citizen- Government will be better positioned. Passive learning occurs when students use their senses to take in information from a lecture, reading assignment, or audiovisual. Traditional lecture is not an effective learning environment for many of our students because so many students do not participate actively during a traditional lecture. This is the mode of learning most commonly present in classrooms whereas active learning involves the student through participation and investment of energy in all three phases of the learning process (input, operations, and feedback).

In the past few years there has been a paradigm shift in curriculum where teacher acts as a facilitator in a student centered learning. In Student centered learning focus is on the student's needs, abilities, interests, and learning styles with the teacher as a facilitator of learning. Here students have to be active responsible participants in learning process. Teacher has key role in the whole process whereas in case of ICT based education, various ICT tools are supplemented to make the teaching-learning process effective.

IV. BENEFITS OF ICT IN PRESENT MODE

One of the most common cited reasons for using ICTs in the classroom has been to better prepare the current generation of students for a workplace.

1. Technological literacy or the ability to use ICTs effectively and efficiently is thus seen as representing a competitive edge in an increasingly globalizing job market.
2. Improving the quality of education and training is a critical issue, particularly at a time of educational expansion.

3. ICTs can enhance the quality of education in several ways by increasing learner motivation and engagement by facilitating the acquisition of basic skills and by enhancing teacher training.
4. ICTs make possible asynchronous learning or learning characterized by a time lag between the delivery of instruction and its reception by learners. Online course materials, for example, may be accessed 24 hours a day, 7 days a week.
5. Teachers and learners no longer have to rely solely on printed books and other materials in physical media housed in libraries (and available in limited quantities) for their educational needs. With the Internet and the World Wide Web, a wealth of learning materials in almost every subject and in a variety of media can now be accessed from anywhere at any time of the day and by an unlimited number of people.
6. ICTs also facilitate access to resource person as mentors, experts, researchers, professionals, business leaders, and peers all over the world.
7. Information Communication and Technology such as videos, television and multimedia computer software that combine text, sound and colorful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process.
8. Interactive radio likewise makes use of sound effects, songs, dramatizations, comic skits, and other performance conventions to compel the students to listen and become involved in the lessons being delivered.
9. The transmission of basic skills and concepts that are the foundation of higher order thinking skills and creativity can be facilitated by ICTs through drill and practice.

V. CHALLENGES

There are so many challenges in implementing ICTs effectively in Education but some of it are given as below.

1. Lack of Awareness
2. Language Barriers
3. Availability of Infrastructure to Support ICT
4. Capacity Building of Teachers
5. Monitoring and Evaluation etc.

VI. LIMITATIONS OF ICT

In the modern technology, Information Communication and Technology simplifies and facilitates human activities is not only advantageous in many respects but also has many limitations which can be categorized:

1. Related with Teacher
2. Related with Students
3. Related with Technologies

1. Teachers' Attitude plays an important role in the teaching-learning process that utilizes computers and internet connections. Although teachers' attitude towards use of these technologies is vital, many observations reveal that teachers do not have clarity about how far technology can be beneficial for the facilitation and enhancement of learning. Of course, some teachers may have positive attitudes to the technology, but refrain from using it in

teaching due to low self-efficacy, tendency to consider themselves not qualified to teach with technology.

2. The Appropriate use of computer and the internet by students have significant positive effects on students' attitude and their achievement. The various literature in the area, identify the following limitations of ICT use in education as related to student behavior.

   a) Over-reliance on ICT limits students critical thinking and analytical skills,
   b) Computer-based learning has negative physical side-effects such as vision problem,
   c) Students tend to neglect learning resources other than the computer and internet,
   d) Students may have less opportunity to use oral skills and hand writing etc.

3. The other limitation of ICT use in education is technology related. The high cost of the technology and maintenance of the facilities, high cost of spare parts, virus attack of software and the computer, interruptions of internet connections and poor supply of electric power are among the technology related limitations of ICT use in education. Therefore, the impact of availability of ICT on student learning strongly depends on its specific uses.

   If ICT is not properly used, the disadvantage will overweight the advantage. For example, while students use the internet, it may confuse them by the multiplicity of information to choose from. As a result, the teacher spends much time to control students from websites unrelated to the learning content.

VII. FINDINGS

The main findings of our research study are given as following:

1. Traditional lecture is not an effective learning environment for many of our students.
2. There are only three phases of the learning process i.e. input, operations and feedback.
3. E- Learning is a learning program which makes use of an information network.
4. Open and distance learning is a way to provide learning opportunities.
5. Educational Technology, Computer Literacy and Studies in Schools are paving the way for a more centrally sponsored scheme comprehensively.
6. ICTs provide greater opportunity for students and teachers to adjust learning and teaching.
7. Teacher plays role in the whole process whereas in case of ICT based education in which various ICT tools are supplemented to make the teaching-learning process effective.

CONCLUSION

Now we conclude that Traditional lecture is not an effective learning environment for many of our students but m . E.T., C.L. and studies in schools are paving the way for more centrally sponsored schemes comprehensively. ICTs provide greater opportunity for students and teachers to adjust learning and teaching. Teacher plays an important role in the whole process of ICT based education in which various tools are supplemented to make the teaching learning process effectively.

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