



ICT based Learning in Higher Education

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ABSTRACT :

Information and communication technologies (ICT) have become commonplace entities in all aspects of life. In 21st century there is a need of digital literacy, e-literacy, multimedia-literacy and ICT literacy in the digital age. Today since the world is moving rapidly into digital media and information, so the role of ICT in education is very important. Higher education (HE) in the country is experiencing a major transformation in terms of access, equity and quality. This transition is highly influenced by the swift developments in ICTs all over the world. ICT helps to share the availability of best practices and best course material in education. ICT tools and technologies extend human capabilities to solve problems, help students in acquiring knowledge and assist teachers in enhancing teaching and learning. ICT based education causes change in the educational objectives in the conception of the teaching and learning process. In this regard the paper addresses the ICT based learning in higher education.

Keywords : Information and communication technologies (ICT), Higher Education, ICT Tools, Technologies, Policies and strategies.

1.1 INTRODUCTION :

Education is a socially oriented activity and is the driving force in the country. The true purpose of education is to transform the innocent and uninhibited student into an inquisitive and well informed citizen equipped with analytical ability and relevant knowledge. In 21st century higher education in the country is experiencing a major transformation in terms of access, equity and quality. Information and communication technologies (ICT) is a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information. This broad definition of ICT includes technologies as radio, television, video, DVD, telephone, satellite systems, computer and network hardware and software as well as the equipment and services associated with these technologies, such as videoconferencing and electronic mail (UNESCO, 2002). ICT is potentially a powerful tool for extending educational opportunities and can provide remote learning resources. ICT encourage students to take responsibility for their own learning and offers problem centered and inquiry based learning which provides easy access and information based resources. Since the world is moving rapidly towards digital media, the role of ICT in higher education has become increasingly important. (A. Garcia et.al) E-learning is emerging as an important strategy to provide widespread and easy access to quality higher education. In 21st century higher education in the country is experiencing a major transformation in terms of access, equity and quality. The rapid increase in student enrolment, knowledge explosion, globalization and economic restructuring have contributed to reforms in higher education (Blurton C., 2002). In higher education, ICT can be viewed as the application of digital equipment to all aspects of teaching and learning and involves a combination of technologies for collecting, storing, processing, communicating and delivering of information related to teaching and learning processes. The paper explores the need for introducing ICT in higher education, impact of ICT on learning and key challenges of ICT in higher education.

1.2 NEED FOR INTRODUCING ICT IN EDUCATION :

Today due to globalization, education plays a critical role in the economic and social growth of the country. Use of ICT in education process can be divided into two categories like ICTs for Education and ICTs in Education. ICTs for education refers to the development of information and communication specially for teaching learning process. ICTs in education involves the adoption of general components of ICTs in the teaching learning process. New technologies like web based PCs, Mobile phones, satellites, Wi-Fi technology and internet are helping teachers and students to gather and disseminate information

(Sukanta Sarkar, 2012). Today several universities, colleges and educational institutions are utilizing the distributed network and multimedia to provide open/distance learning programs. To disseminate the knowledge in higher education, role of ICT is very important since ICT is used to improve delivery and access to education and tends to improve the understanding of the learner, increase quality of education and increase the impact of education on the

economy. Use of different technology like e-mail, electronic forums, audio/video conferencing, television lessons, chat rooms, instant messaging and other forms of computer based communication, wireless technologies etc. can be used in education for different purposes. To disseminate the knowledge in higher education, role of ICT is very important which is used to improve delivery and access to education and tends to improve the understanding of the learner, increase quality of education and increase the impact of education on the economy. ICT involves a combination of technologies for collecting, storing, processing, communicating and delivering of information related to teaching and learning processes. (Bhattacharya, I. & Sharma, 2007, Balasubramanian & Willie ,2009).

ICT policy in higher education aims at preparing youth to participate creatively in the establishment, substance and growth of knowledge society leading to all round socio-economic development of nation. ICT based learning causes a shift from teacher as a knowledge transmitter, controlling and directing all aspects of learning to a learning facilitator, collaborator, coach, knowledge navigator and co-learner. The integration of ICT in higher education involves the consideration of three important dimensions of innovation such as changes in students' role, changes in teachers' role and changes in working mechanism of higher education institutions. (Hattangdi & Ghosh)

Use of ICT for the delivery of education process are

- i) Voice – Instructional audio tools that include interactive technologies as well as the passive ones.
- ii) Video - Instructional video tools that include still images, prerecorded moving images and real-time moving images combined with audio conferencing.
- iii) Print – Instructional print formats that include textbooks, study guides, workbooks and case studies.

ICT can be used as a tool in the process of education in the following ways :

- Informative Tool : It provides vast amount of data in various formats such as audio, video and documents.
- Situating Tool : It creates situations which student experience in real life. Thus simulation and virtual reality is possible.
- Communicative Tool : It can be used to remove communication barriers such as that of space and time.

1.3. THE IMPACT OF ICT ON LEARNING :

Conventional teaching has emphasized on content of lectures, textbooks, tutorials and learning activities designed to consolidate and rehearse the content. Contemporary settings are now favoring curricula that promote competency and performance which emphasis on capabilities about how the information will be used . : (Oliver, 2002, Young, 2002)

- a. Competency and performance-based curricula : The moves to competency and performance-based curricula are well supported and encouraged by emerging instructional technologies . Such curricula tend to require access to a variety of information sources, access to a variety of forms and types, student – centered learning settings and teachers as mentors rather than content experts.
- b. Information literacy : Traditionally generic skills have involved such capabilities as an ability to reason formally, to solve problems, to communicate effectively and teamwork skills. The growing use of ICTs as tools of every day life have seen the pool of generic skills expanded in recent years to include information literacy.
- c. Student-centered learning : Technology has the capacity to promote and encourage the transformation of education from a very teacher directed enterprise to one which supports more student-centered models.
- d. Any Place Learning : The communications capabilities of modern technologies provide opportunities for many learners to enroll in courses offered by external institutions rather than those situated locally. Learners may be of different background, cultures and perspectives.
- e. Anytime Learning : ICT provides the capability to undertake education anywhere, anytime and any place. Learners are free to participate in learning activities according to their own time and these freedoms have greatly increased the opportunities for many students to participate in formal programs.
- f. Supporting Knowledge Construction : The emergence of ICTs as learning technologies has coincided with a growing awareness and recognition of alternative theories for learning.

1.4 Key Challenges of ICT in Higher Education :

Though there is tremendous use of ICT in different facets of ICT in higher education, still ICT faces different challenges in higher education discussed below . (Mondal & Mete, 2012, Meenakshi & Vasantha , 2014).

- i. Lack of ICT infrastructure : Major central and state governments institutes have excellent ICT infrastructure. However institutes in rural area are not having enough ICT infrastructure with proper rooms so as to accommodate the technology and low level of internet connectivity. Hence these institutes are not benefiting to get the ICT services properly.
- ii. Low penetration : ICT in higher education is limited to Tier 1 cities or major central and state government institutes. Institutes in Tier II and Tier III cities are not getting benefit of it.
- iii. Absence of effective e-content in regional languages : Most of the content available is in English language. Also some of the content is of low quality that has poor instructional design and is not adopted to the technology in use. Also majority of the students and teachers especially in rural area are not

familiar with English language. Hence they find it difficult to grasp the contents generated in English language.

- iv. Initial setup cost : Set up cost of ICT includes acquiring, installing, operating and maintaining cost of ICT.
- v. Cost of Licensed softwares : It is difficult for Higher education institution to afford cost of licensed software.
- vi. Lack of Funding from Government: Proper funding from the government is required to set up the required ICT infrastructure .
- vii. Online Teaching : Since not all teachers are ICT literate and can teach using ICT tools, hence online teaching is a challenge to the higher education. There exist lack of both in -service and pre-service training among teachers.
- viii. Producing low quality content : The contents are of poor instructional design and is not adopted to the technology in use.

Though there are challenges for the implementation of ICT in higher education, there is a need to give top priority to the development of ICT and telecommunication infrastructure in order to provide universal and affordable access to information to people and institutions all over the country.

1.5 CONCLUSION : ICT helps the students to acquire 21st century skills like digital literacy , innovative thinking, creativity, sound reasoning and effective communication. ICT provide a rich environment for teaching learning process which seems to have a profound impact on student performance and achievement. ICT based education can be expected to provide greater reliability, validity and efficiency of data collection, and greater ease of analysis, evaluation and interpretation at any educational level. Traditional universities and colleges have to change their strategies and envisage new approaches in order to meet challenges of learning on demand in the face of sinking resources. The use of ICT based learning requires to use technologies where cost of hardware, software, human skills and training is to be considered. To properly implement ICT in higher education, there is a need to develop proper infrastructure, establishment of support agencies, simulation of innovation and ICT implementation and support for partnership among institutions as well as with private partners. ICT-supported education can promote the acquisition of knowledge and skills that will empower students for lifelong learning if designed and implemented properly. The growing use of ICT will change many of the strategies employed by both teachers and students in the learning process. As the nation moves deliberately towards a major expansion of its higher education system in a variety of modes and levels, it is necessary to ensure that ICTs with a tremendous expansion potential serve as the anchor for promoting social equity. Hence the foundation for widening access to higher education

should begin with integration of ICT in the educational process right from the school as a backward link to guide and streamline the access process to a larger variety of post-secondary education avenues.

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