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Quality Enhancement in Higher Education through ICT

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Abstract:

The quality of higher education is a multi-dimensional concept. Higher education in India is experiencing a major transformation in terms of access, equity and quality. This transition is highly influenced by the rapid developments in information and communication technologies in whole world. The optimal utilization of opportunities arising due to diffusion of ICTs in higher education system presents a profound challenge for higher education institutions. The introduction of ICTs in the higher education has profound implications for the whole education process especially in dealing with key issues of access, equity, management, efficiency, pedagogy and quality. Different ICTs are now set to become instrumental to help expand access to education, strengthen the relevance of education to the increasingly digital workplace, and raise educational quality, among others, helping make teaching and learning into an engaging, active process connected to real life. The application, exposure and deployment of ICTs fundamentally change the way education is conceived and delivered to students. Due to its easy accessibility this means of education has become very popular. This paper highlights how ICT can be applied to enhance the quality of higher education.

Keywords: Information and communication technology, higher education

1. Introduction

Higher education systems have grown exponentially in the last five decades to meet the demands of quality education for all. This aspect has further gained momentum due to rapid advancements in Information and Communication Technology (ICT). Demand for skilled and competent labour is ever increasing in the contemporary globalised society. Competition in every sector ranging from access to quality in higher education has emerged as determining factor of economic growth and development. In order to increase the access to higher education and improving its reach to the remotest parts of the country contribution of open and distance learning facilities is on increase. In addition, it is catering to life long learning aspirations and that too at affordable cost. The last two decades have witnessed the inclusion of ICTs in the developments of higher education systems around the world. Even then the challenge to develop a higher education system that is flexible and dynamic so as to holistically integrate the technology in the management and delivery of learning programmes is daunting. Involvement of ICTs in different dimensions of the Indian education system is taking place at a fast pace. Use of audio visual aids, radio, TV to support education and dissemination of information for national development. The use of satellite in education started as Satellite Instructional Television Experiment (SITE) in 1975-76. This led to the establishment of CIET-SIET studios for production and transmission of school oriented programs, initiation of the country-wide classroom of the UGC with CEC as the nodal agency by creating educational media resource centres (EMRCs) and audio-visual resource centers (AVRCs) in several universities. Presently these programmes are continuing as Vyas Channel supported by the CEC and various EMRCs, Gyandarshan II of the IGNOU, Open School and NCERT broadcast channel. EDUSAT was conceptualized to meet the communications requirements of the education sector. The Eleventh five year plan is further giving impetus to use of ICTs in education by setting up a National Mission in Education through ICT. In this regard, use of ICTs would contribute significantly to enhance the access and quality of education but at the same time it may generate situations, which warrant attention. For instance to promote technology driven education and open and distance learning the country launched a dedicated satellite EDUSAT on September 20, 2004. It was expected that EDUSAT would bring both quantitative and qualitative revolution in education. However, the quantitative expansion appears to have been achieved is being able to reach out to large numbers, yet the qualitative revolution envisioned due to introduction of new services and better quality teaching with learning materials, has not been quite visible (Bhatia, 2009).

2. Information Communication Technology

Information and Communication Technologies (ICTs) are referred to as the varied collection of technological gear and resources which are made use of to communicate. They are also made use of generate, distribute, collect and administer information. It include radio and television, as well as newer digital technologies such as computers and the Internet — have been proven as potentially powerful tools for educational change and reform. Information and Communication Technology (ICT) is basically an umbrella term that encompasses all communication technologies such as internet, wireless networks, cell phones, satellite communications, digital television etc. that provide access to information. Today ICTs—including laptops wirelessly connected to

the Internet, personal digital assistants, low cost video cameras, and cell phones have become affordable, accessible and integrated in large sections of the society throughout the world. It is only through education and the integration of ICT in education that one can teach students to be participants in the growth process in this era of rapid change.

3. Definitions

"Information and communications technology (ICT) in education is the processing of information and its communications facilities and features that variously support teaching, learning and a range of activities in education."

4. Role of ICT in Higher Education

Most important question, which comes in mind, is what should be the role of ICT in higher education system. The unprecedented changes have taken place in the society due to the impact of rapidly growing technological interventions. The delivery mechanisms and content of education in general and higher education in particular have been highly influenced. These changes are creating enormous opportunities for improving the quality and efficiency of education on the one hand and on the other present challenges before us to design and develop mechanisms to harness the great potential of information and communication technologies. Swift growth of ICT is taking place all over the world. They have emerged as powerful tools for diffusion of knowledge and information. Their introduction and unprecedented use in the higher education has generated varied response. On the one hand there is acceptance of its potential benefits to knowledge creation i.e. field of research and its dissemination and on the other extreme it is feared that their use will further the digital divide/ inequity. It is inevitable that their increasing use in education system will also raise issues regarding what kind of technologies, in what quantity, at what level and for what purpose they need to be introduced. The concerns such as who will manage this process develop policy guidelines and strategies also require consideration. Wright (2000) pointed out that it will not be wise to ignore the issues related to equity, cultural integrity, and the negative aspects of technology in economic and social development (Wright, 2000, p.12). Nevertheless, the opportunities and challenges raised at different platforms can be categorized as the aspects relating to role of ICT for access and equity in education, role in management and efficiency in education, their role in pedagogy for quality learning and teaching at higher education level and in inducing innovations in approaches and programmes.

Another most important dimension of higher education sector influenced by ICT integration is improving quality of teaching-learning. Also, the changes taking place due to globalization and internationalization attach a premium to knowledge and information. Therefore, the integration of ICTs would not only help in promoting personal growth but also in developing "knowledge Societies". The call of the hour is the need to provide education for everyone, anywhere, and anytime. Lifelong learning has become the driving force to sustain in the contemporary competitive environment. Therefore to strengthen and advances this knowledge-driven growth, new technologies, skills and capabilities are needed.

5. Innovative Approaches for Teaching

ICT have the potential to drive innovative and effective ways of teaching-learning and research. The inclusion of learning tools, easier use of multimedia or simulation tools, easy and almost instant access to data and information in a digital form which allows for computations and data processing generates possibilities which were otherwise not feasible. The possibility to diffuse these innovations and complement the learning content to improve quality in higher education through innovative pedagogic methods.

6. Technological Trends in Higher Education

It help to create a social, highly collaborative and personalized environment with innovative solutions that will enhance the way students learn, communicate & collaborate and study both on and off campus. Some of the exciting Technology trends in Indian Universities are:

6.1. Digitization of Books (E-Text Books)

There is an increased trend towards creation of a digital repository of books to create a digital learning environment for students. The digital version of the books embedded with text, pictures along with video, simulations and visualizations help students learn the concepts in an interactive way. The National mission on Education through ICT plans to generate new online course content for UG, PG and Doctoral education. Efforts are already underway to prepare course content for 130 courses (UG and PG).

6.2. Open Education Resources

Many Indian universities are contemplating Technology enabled free access of education resources. AICTE – Indian National Digital Library in Engineering & Technology (AICTE – INDEST) is a consortium set up by the Ministry of Human Resource to enhance greater access and generate annual savings in access of bibliographic databases. UGC has also launched its Digital Library Consortium to provide access to peer reviewed journals and bibliographic databases covering subjects such as arts, humanities, technology and sciences.

6.3. Virtual Technical University

The National mission on Education through ICT is working on a war foot to establish a virtual technical university to impart training to UG/PG students along with new teacher

6.4. Mobility

Adoption of the BlackBerry, iPhone and other smart devices that have Internet access allows students and faculty to perform a wide range of assignments. Tasks like administration, sharing class notes, downloading lectures, instant messaging, etc., are possible anywhere cell phone service is available. Mobile phones are also being used to access computer files from remote locations.

6.5. Social Learning

The emergence of Web and social networking such as blogs and wikis, as well as new online video repository and delivery websites such as YouTube, and Big Think. These technologies create new channels in higher education for content delivery, online video expansion and broadcasting. Also, the adoption of virtual reality websites such as "Second Life" has provided higher-education institutions with new venues for class gatherings and learning.

6.6. Content Delivery using IT/ICT

In Higher Education content is delivered through innovative use of ICT. There is an increased trend in higher education institutes to render content through Radio, TV and Satellite.

7. Drawbacks-Cum-Challenges Using ICT in Higher Education

ICT is powerful tools having the potential to transform the educational system. While using ICTs in education has some obvious benefits, but also bring challenges. The four most common mistakes in introducing ICT into teaching are:-

- Installing learning technology without reviewing student needs and content availability.
- Imposing technological systems from the top down without involving faculty and students.
- Using inappropriate content from other regions of the world without customizing it appropriately.
- Producing low quality content that has poor instructional design and is not adapted to the technology in use.

Although ICT offers a whole lot of benefits there are some risks of using ICT in education which have to be mitigated proper mechanisms. They are:

- It may create a digital divide within class as students who are more familiar with ICT will reap more benefits and learn faster than those who are not as technology savvy.
- It may shift the attention from the primary goal of the learning process to developing ICT skills, which is the secondary goal.
- It can affect the bonding process between the teacher and the student as ICT becomes a communication tool rather than face to face conversation and thus the transactional distance is increased.
- All teachers are not experts with ICT they may be lax in updating the course content online which can slow down the learning among students.

8. Conclusion

Diffusion of ICTs in Indian universities and colleges would respond to the twenty-first century demands. The contemporary higher education systems are aiming for acquisition of ICT skills as part of the core education system, provision of infrastructure/fully equipped labs, professional assistance and other support needed to enhance quality of education. In the 21st century, India needs a large number of talented youth with higher education for the task of knowledge acquisition, knowledge imparting, knowledge creation and knowledge sharing. The increasing use of information and communication technologies (ICTs) has brought changes to teaching and learning at all levels of higher education systems (HES) leading to quality enhancements. Traditional forms of teaching and learning are increasingly being converted to online and virtual environments. The use of ICT in education not only improves classroom teaching learning process, but also provides the facility of e-learning. There are various technological trends (*E-Text Books, Open Education Resources, Virtual Technical University, Mobility, Social Learning, and Content Delivery using IT/ICT*) which are to be employed for imparting education.

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