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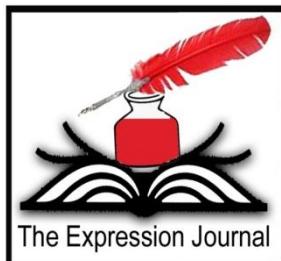
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INFORMATION AND COMMUNICATION TECHNOLOGY IN INDIA'S HIGHER EDUCATION: PROBLEMS AND PROSPECTS

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Abstract

Information and Communication Technology has become commonplace entity in all parts of our life. Every aspect of human life in the present time is influenced by scientific inventions and discoveries. The field of education too has not been left untouched by its influence. All domains of education whether methods and techniques, aims, teaching process or research: appear to be incomplete without technology. The sudden boom in Information Technology has transformed the way how the knowledge is disseminated today. It has brought about the way how teachers interact and communicate with the students and vice-versa. But the fact is that the higher education in India is still plagued by the challenges of inadequate technology accesses. This present paper is an attempt to show the importance of ICT in higher education and also to highlight the problems of its implementation in higher educational institutions of Assam.

Key-Words

ICT, Higher Education, Disseminate, Problem, Plague etc.

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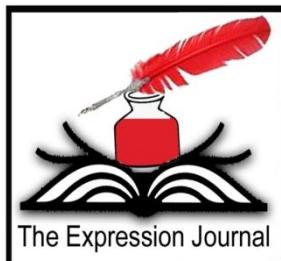
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Introduction:

Every aspect of human life in the present time is influenced by scientific inventions and discoveries. Information and Communication Technology is a force that has changed many aspects of the way we live. It has become as a commonplace entity in all parts of our life. In the last twenty years the use of ICT are rapidly transforming our agrarian and industrial society into an information society. The use of ICT has fundamentally changed the practices and procedures of business and governance as well as education. In the present scenario the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the 21st century. There have been unprecedented growths in the use of ICTs in teaching, learning, research and extension activities. It has transformed the way how knowledge is disseminated today in terms of how teachers interact and communicate with the students and vice-versa. In addition it can provide networking structures transcending borders and foster empowerment amongst students.

The higher education system of India is one of the largest in the world. During the time of independence only 20 universities and 500 colleges with 0.1 million students were in India. But according to the statistics of higher education 2012-13; today we have about 700 universities and university level institutions and 35,000 affiliated colleges and enrolling more than 20 million students. Integration of ICT in Indian Universities and Colleges would respond to the 21st century demands. The contemporary higher education

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systems are aiming for acquisition of ICT skills as part of the core education system. Application of ICTs in managing higher education institutions and use of the technology to homogenize quality of education in the highly diverse scenario across the colleges and universities established in the country would benefit many students (Neeru Snehi, 2009). Information and Communication Technology acts as a powerful agent to change many of the educational practices accustomed by the universities and colleges. As students and teachers gain access to technology, more direct forms of communication and access to sharable resources, the capacity to support these quality learning standards will continue to grow.

Information and Communication Technologies (ICTs) are referred to as the varied collection of technological gear and resources which are made use of communicate. They also made use of generate, distribute, collect and administer information. It is a force that has changed many aspects of the way we live. It consist of the hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services. Information and Communication Technology can be divided into two components, Information and Communication Infrastructure (ICI) which refers to physical telecommunications systems and networks (cellular, broadcast, cable, satellite, postal) and the services that utilize those (Internet, voice, mail, radio, and television), and Information Technology (IT)that refers to the hardware and software of information collection, storage, processing and presentation.

Objectives:

The main objective of this paper is to assess the use of ICT in higher education in India. Moreover the study also tries to explore the problems of implementation of ICTs in higher education in India with special reference to Assam.

Methodology:

The present study is concentrated on the use of ICT in Higher Education in India. The research methodology adopted for this study is based on descriptive and analytical method. Further the sources are mainly based on library resources like reference books, scholarly journals and also internet.

Discussion:

In India, there are about 700 Universities and 35,000 affiliated colleges which are providing higher education and accounting for the largest number in the world, enrolling more than 20 million students. The number of students enrolled in the universities and colleges has increased since independence to 13,642 million in the beginning of the academic year 2009-10 with 1,669 million (12.24%) in the university departments and 11.973 million (87.76%) in the affiliated colleges (MHRD, Annual Report, 2009-10).

The higher education system in India continues to suffer due to inadequate access to technology and inequity. However, the application of ICT in higher education has not

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only brought about diversification in higher education but also fostered new avenues for international mobility of traditional and non-traditional students. While it is believed that ICT can transform the educational scenario in the country, it should address the needs and perform multiple roles in higher education to benefit all stakeholders. This sense of urgency and the continuous implementation of ICT in higher education have led many universities and colleges into a more action-oriented adaption approach (Schmidlein & Tailor, 2000).

Use of ICT in Higher Education:

Education is very much essential for social and economic development of a country, and higher education is a key area to maintain its competitiveness in the global economy. The use of ICT in higher education is solicited for improving quality, widening access and changing operational efficiency across all functions in higher education sector and to create new dynamics in higher education both at micro and macro levels (Meenakumari, 2010). Introduction of ICTs in the higher education has profound implications for the whole education process ranging from investment to use of technologies in dealing with key issues of access, equity, management, efficiency, pedagogy, quality, research and innovation. ICT applications provide institutions with a competitive edge by offering enhanced services to students and faculty, driving greater efficiencies and creating enriched learning experiences.

ICT in Teaching and Learning:

Higher education is planned to build a knowledge repository of multidisciplinary of subjects, as a strategy to counter the shortage of faculty in higher education, EDUSAT (Educational Satellite, 2004) will be used to share the available expertise through modular programmes. This will be done by networking institutions, creation of virtual laboratories, creation of database, access to expert lectures and technological development in Industries and Research organizations etc. Teaching learning situation can further be improved by replacing of conventional chalk and talk teaching through the innovative methods like Power Point presentations and animations, modeling and simulations, video clips and using AV aids, LCD projectors etc. These generally enhance the learning ability of the students and also help the teachers to elaborate the difficult concepts effectively within a short time span. Some of the prominent supporting environments are like the followings:

1. Virtual Learning Campus (VLC) is an approach that divides the responsibility of building, commissioning and running the different systems and information infrastructure for education like Broadband, EDUSAT and ERNET services, Synchronous class room environment, E-learning and digital library, ERP management solutions etc under centers of specializations in different institutions in different disciplines.

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2. Tele-Education System is the application of space technology in education. An integrated network system comprising of EDUSAT, Broadband and V-SAT networks helps in bringing virtual class rooms in a multi class environment with seamless two-way interaction between the teachers and students in a collaborative environment.
3. Distance Learning is a type of education, where students work on their own at home or at the office and communicate with faculty and other students via e-mail, electronic forums, video conferencing, chat rooms, instant messaging and other forms of computer-based communication. It is also known as open learning.
4. Virtual libraries and digital learning helps teachers and students to get information quickly and conveniently. Distance education requires virtual libraries. It provides text, video, audio and other formats for teaching and learning support digital learning. Virtual libraries collect and organize information and help the users to use the right information at the right time.

ICT in Research:

Application of ICTs is particularly a powerful phenomenon in the research field in higher education. In the last 10 to 15 years the application of ICTs in academic research has grown steadily in both developing and developed countries. It has been most straightforwardly used in research for data processing. The unprecedented growth in bandwidth and computing power provide opportunities for analyzing and processing huge amounts of data and performing complex computations on them in a manner that is extremely fast, accurate and reliable. Through ICTs the researchers have a provision of quick access of thousands journals, articles, eBooks, publications etc. for their research purposes and also have a provision to submit online publications. Further the use of ICTs saves time, money and effort to the researchers in their research studies like they can collect data of large population with a single e-mail and retrieve data in a fraction of seconds through the availability of various software.

ICT in Administration:

Information and Communication Technology play a major role in administration of educational institutions. It helps in efficient utilization of existing resources and simplifies the administration tasks by reducing the paper work and replaces the manual maintenance of record keeping to electronic maintenance of records which helps in easy retrieval of any information of students, staff and general within a fraction of seconds.

Advantages of ICT in Education:

Use of Information and Communication Technology in education presents a unique opportunity for the peoples to solve multitude of challenges quickly as well as of low rate. In the modern technological ages it has some positive aspects in higher education which can be revealed through the following ways.

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Firstly It Improves the Quality of Education:

- Support collaboration among students, teachers and institutions.
- A reliable grading system to measure and assign rank to student, teachers, schools and universities.
- All round development of students.
- Promote educational ideas.

Secondly It Improves the Accessibility:

- Bring the books & other resource within reach of students.
- Promote education in rural areas.
- Provide online courses to students.

Thirdly it reduces the cost of Education:

- Provide services at lower cost through online solutions.
- Assist teachers for conducting exam and offer courses material.
- ICT opens the doors for girls to get education from home e.g. online learning if social and cultural reasons are preventing them.
- ICT promote vocational courses as well as self passed learning for the adults.

Problems of ICT in Higher Education:

Apart from glorifying the role of ICT in the higher education, we also need to assess the problems in its implementation. Implementation of ICT in educational institutional is one of the big challenge due to high cost incurred for acquiring, installing and replace of latest software and addition to that various opportunity cost to institutions for infrastructure development. This is not possible for self-financing institutions to manage all these until and unless they have financial aid from government.

Establishment of ICT infrastructure is not sufficient to achieve the goals of successful integration of ICT in educational institutions. However the development of e-content, its dissemination, selection and evaluation requires large scale networking among the users and producers and intellectual property rights among the stake holders is the major concern for the holistic integration of ICT in education.

The major challenge before ICT is availability of ICT infrastructure i.e. lack of buildings, problems in electricity, network availability, lack of awareness towards technology and utilization of technology with improper knowledge are adding complexities

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for the successful implementation of ICT in educational institutions.

Despite the advancement of Information and Communication Technology in present scenario many institutions are still in a nascent stage in the integration of ICT in education. As many institutions are still accustomed with traditional learning practices and lack of motivation and knowledge among teachers to adopt ICT in teaching-learning environment are the other challenging factors for the potential benefit of the ICT in higher education.

Information and Communication Technology can help in improving the India's higher education system by providing greater equity and better accessibility. There is a growing apprehension that ICT can transform India towards becoming a knowledgeable society, but can technology alone enhance the quality of higher education in the country? The penetration of ICT systems in higher education institutions is extremely poor according to a survey of accredited colleges by UGC in 2008 which reveals shortcomings in IT infrastructure. As the majority of Indians living in rural areas have poor access to internet, it is necessary that they are exposed and trained in basic computing skills and ICT utilization. Moreover, the low awareness on IT literacy is also a major challenge which India faces in realizing ICT implementation in higher education.

Higher education in Assam is still far away from satisfactory level. High standard of education, educated unemployment, access to higher education, poor management etc. are the great concerns for the higher education scenario in Assam. Higher education infrastructure in Assam, especially ICT infrastructure is yet to be built. Most of the higher educational institutions in Assam face the ICT infrastructural problems like non-availability of buildings, electricity and communication infrastructure etc. It is necessary for the Assam government to take help from the central government for establishment of such kind of university to provide ICT facilities. The linguistic diversity of India as well as Assam necessitates the development of content in multiple languages to increase ICT applications. According to the 2011 Census the rural-urban distribution is 68.84% and 31.16% in terms of population where majority of the rural people do not speak English. Therefore, the need to develop content in all the official languages of India becomes more important.

Conclusion:

ICT integration in higher education brings a change in student and teacher's learning behavior and the collaboration of all stakeholders in the universities and colleges by sharing the information for mutual benefit. Information and Communication Technology has no doubt brought about tremendous change in education, but we are yet to achieve the desired level of IT adoption in higher education in the country. The optimal utilization of opportunities arising due to diffusion of ICTs in higher education system presents enormous challenges. Hence the successful integration of ICT in higher education depends on the collaboration of national and institutional policies. The actions taken for the

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implementation of ICT needs to be a proper action plan and training to all stakeholders involved in the integration and bring change on them. Finally we can conclude that information and communication technology has changed the total scenario of higher education very rapidly. And it is a progressive sign for the future generation to come.

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