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INFORMATION AND COMMUNICATION TECHNOLOGY IN HIGHER EDUCATION IN INDIA: ISSUES AND OPPORTUNITIES

***Navita & **Rittu Raj**

Abstract

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 swift advancements in Information and Communication Technology (ICT). 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 in the 21st century. Traditional forms of teaching and learning are increasingly being converted to online and virtual environments. There are endless possibilities with the integration of ICT in the education system. The use of ICT in education not only improves classroom teaching learning process, but also provides the facility of e-learning. ICT has enhanced distance learning in the 21st century. Successful implementation of ICT to lead change is more about influencing and empowering teachers and supporting them in their engagement with students in learning rather than acquiring computer skills and obtaining software and equipment. The paper examines certain important issues related with the effective implementation of ICTs in all levels of education and provides suggestions to address certain challenges that would help in the implementation of ICTs in education and simultaneously increasing Quality of education.

Key Words*: Higher Education, Distance Learning, Formal Education, Innovative Usage, ICT.*

Introduction

Information and communication technology (ICT) is a force that has changed a lot of aspects of the life. If one compare fields such as education, banks, medicine, hotel and tourism, travel, business, law, and architecture, the impact of ICT across the past two or three decades has been massive The way these fields operate today is vastly different from the ways they operated in the past. But when one looks at education, there seems to have been an uncanny

*Assistant Professor, Department of Education Pragya College of Education Bahadurgarh
Email: navita.godara@gmail.com
**Assistant Professor, Department of Education Pragya College of Education Bahadurgarh
Email: Ritturaj0003@gmail.com

lack of influence and far less change than other fields have experienced. A number of people have attempted to explore this lack of activity and influence.

Importance of education in almost all walks of life has increased with the support of information and communication technologies (ICT). During the past 20 years, the use of ICT has fundamentally changed the working of education. In the current environment-conscious world, the importance of education and acceptability of ICT as a social necessity has been increasing. Social acceptability of information and communication tools is necessary to improve the mobility in the society and increase the pitch for equity and social justice (Shah Md. SafiulHoque, S. M. ShafiulAlam).

The Indian higher education system is one of the largest in the world. With only 20 universities and 500 colleges with 0.1 million students at the time of independence, we now have about 777 universities and university-level institutions as of 02 December 2016. Despite the significant rise in numbers, when it comes to IT solutions in the education market, there is significant scope for improvement in India (Milind) Integration of ICT 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. 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. (NeeruSnehi 2009). The Government of India has taken ICT initiatives in a big way and has laid down a National ICT policy, which is reflected and implemented through various Government Departments and Ministries. It is being implemented through vigorous activities of National Informatics Center (NIC) and encouragements form University Grants commission (UGC), All India council of Technical Education (AICTE) and Department of Science & Technology (DST) throughout the country. National Association of Services and Software Companies (NASSCOM) has also played a crucial role in the formulation of these policies (Dhirendra Sharma, Vikram Singh 2010). . ICT 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 capability to support these quality learning standards will continue to

*Assistant Professor, Department of Education Pragya College of Education Bahadurgarh
**Assistant Professor, Department of Education Pragya College of Education Bahadurgarh

grow. ICT applications provide institutions with a competitive edge by offering enhanced services to students and faculty, driving greater efficiencies and creating enriched learning experiences.

Growth of Higher Education Scenario in India

In order to get timely and quality data in the education sector, which is having implications for human development the Ministry of Human Resource Development initiated an All India Survey of Higher Education to build a database and to assess the overall picture of Higher Education in the country. A dedicated portal (http://aishe.gov.in) has been developed with the help of National Informatics Centre (NIC) for collection and compilation of the data. All the institutions need to register on the portal for accessing the portal and uploading the data. From 2014-15 the Information and Statistics Bureau of UGC has stopped collecting data directly from the Universities. Compilation and estimation of data at the All India level is being made through the portal http://aishe.gov.in and this enabled us to shift to paperless exercise. At the time of Independence of India, there were only 20 Universities and 500 Colleges in the country with 2.1 lakhs students in higher education. The numbers now have increased 40 times in the case of the Universities, 82 times in the case of Colleges and the students enrolment has gone up to over 127 times in the formal system of higher education since independence. As on 31.03.2015, the number of Universities had gone up to 711 – (46 Central, 329 State, 205 State Private, 128 Deemed to be Universities, three Institutions established under State Legislation) and 40760 colleges in the Higher Education sector.As many as 1147 new colleges were established in various states during 2014-2015, thus taking the total number of colleges from 39613 in 2013-14 to 40760 in 2014-2015.During the academic session 2014-2015, the total enrolment in all courses and levels in regular stream was 265.85 lakhs including 124.76 lakhs women students, constituting 46.93%.

Recent initiatives taken by Government of India for Higher education

19 New Higher Educational Institutions- Five IITs - Andhra Pradesh, Jammu & Kashmir, Chhattisgarh, Goa, Kerala, Six IIMs -Himachal Pradesh, Andhra Pradesh, Punjab, Maharashtra, Bihar, Odisha, Four New Central Universities – Andhra Pradesh (1 Central University & 1 Tribal University), Bihar (Mahatma Gandhi Central University), One IISER –

*Assistant Professor, Department of Education Pragya College of Education Bahadurgarh
**Assistant Professor, Department of Education Pragya College of Education Bahadurgarh

Andhra Pradesh, One NITAndhra Pradesh, One IIIT – Andhra Pradesh, One Tribal University –Telengana.

ShaalaDarpan - A focused approach to give the right impetus to all the States in deploying ICT ShaalaDarpan – an ICT programme of Ministry of Human Resource Development was launched to provide mobile access to parents of students of Government and Government aided schools. Using ShaalaDarpan parents can view updates on their child's progress. They can view records of attendance, assignments and achievements of their child. The ministry aims to launch the service by 2015 academic session.

Campus Connect: The National Mission on Education through Information and Communication Technology (NMEICT) Scheme aims to leverage the potential of ICT for teaching and learning processes. The Mission has two major components. (a) content generation, (b) providing connectivity along with provision for access devices to the institutions and learners. Under the NMEICT Mission connectivity to 419 Universities/ University level Institutions and 25000+ colleges and polytechnics in the country has been envisaged to be provided.

National E-Library:- The National Digital Library of India is envisaged as a National knowledge asset which will provide ubiquitous digital knowledge source. It will support and enhance education, research and innovation catering to the needs of all types of learner groups over the country. Developing and providing efficient access to quality e-content addressed to various learners with different backgrounds, expectations and languages.

SWAYAM - Study Webs of Active -Learning for Young Aspiring Minds SWAYAM is a Massive Open Online Courses (MOOCs) initiative on a national platform with a comprehensive academic structure. The integrated platform will offer courses covering Engineering, Humanities and Social Science etc. to be used by learners at large. Formation of a Consortium of Premier Educational Institutions & Universities to offer flipped online courses instantaneously after due authentication and award of certification.

*Assistant Professor, Department of Education Pragya College of Education Bahadurgarh
**Assistant Professor, Department of Education Pragya College of Education Bahadurgarh

Production of courseware E-content for postgraduate

e-PGPathshala : The National Mission on Education through information Communication Technology (NME-lCT) is envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions at any-time anywhere mode

Integration of Information and Communication Technologies

For developing courseware e-content in post-graduate subjects across all disciplines, the UGC has constituted a Standing Committee to prepare blueprints and to observe the entire operation of the scheme. The task of development of e-content has been entrusted to INFLIBNET. The e-content so developed would be available in open access through a Learning Management System (LMS) set up at INFLIBNET Centre as well as through Sakshat Portal. The total cost incurred in the project during 2014-15 is Rs 9.08 crores.

The UGC has taken mapping of the Universities in reference to (a) Universities connected with Digital Fibre (b) Universities having LAN (c) Universities having Wi-Fi facility. 636 Universities responded and it was found that (i) 89% of universities are connected with Optical Fibre (ii) 92% of universities have LAN and (iii) 85% of universities haveWi-Fi facility.

Changes in Students and Teachers Roles in Learner-Centered Environments.

Changes in Teacher Role	
A shift from:	*A shift to:*
Knowledge transmitter, primary source of information, content expert, and source of all answers	Learning facilitator, collaborator, coach, mentor, knowledge navigator, and co-learner
Teacher controls and directs all aspects of learning	Teacher gives students more options and responsibilities for their own learning
Changes in Student Role	
A shift from:	*A shift to:*
Passive recipient of information	Active participant in the learning process
Reproducing knowledge	Producing and sharing knowledge, participating at times as expert
Learning as a solitary activity	Learning collaboratively with others

*Assistant Professor, Department of Education Pragya College of Education Bahadurgarh
**Assistant Professor, Department of Education Pragya College of Education Bahadurgarh

ICT in Teaching and Learning

While for Higher Education sector is planned to build a knowledge repository of multidisciplinary subjects, as a strategy to counter the shortage of faculty in higher education, EDUSAT 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 developments in Industries and Research organizations etc. Teaching and learning can further be improved by replacing of conventional teaching instead of the usual age old method of chalk and talk for teaching by innovative methods4 like Power point presentations and animations, modeling and simulations, video clips and using AV aids, LCD projectors etc. This enhances the learning ability of the student and also helps the teacher to elaborate the difficult concepts effectively within a short time span. Seminars of the students can also be arranged allowing the references to be done using internet and the presentations using high tech display devices as LCD projectors. Different online courses of the foreign universities are made available for the students in the internet centre in collaboration with the universities. (Savita Desai, Prashant Shah). ICT in higher education change the view of learning from teacher centered to student centered learning system and the teachers are the facilitators, coaches and mentors were ICT support the learning environment to students.

Benefits of ICT in Education

Improve Quality of Education

- Support collaboration among students, teachers and institutions
- A reliable grading system to measure and assign rank to Students, Teachers, Schools and Universities
- All round development of students
- Promote educational ideas
- Continuous improvement by feedback

Improve Accessibility

- Acessible anytime from anywhere to everyone
- Bring the books & other resource within reach of students
- Promote education in rural areas

*Assistant Professor, Department of Education Pragya College of Education Bahadurgarh
**Assistant Professor, Department of Education Pragya College of Education Bahadurgarh

 Provide online courses to students.

 24×7 schooling system for those students who cannot attend regular schools during daytime

Reduce the cost of education

 Provide services at lower cost through online solutions

 Promote ―learn yourself‖ and ―community learning‖ via online system, etc.

 Assist teachers for conducting exam and offer courses material

 ICT opens the doors for girls to get education from home for e.g. online learning if social & cultural reasons are preventing them.

 ICT promote vocational courses as well as self-paced learning for the adults

 ICT bring culturally diverse India on a common learning platform which is offered in all languages

Issues and Challenges of ICT in Higher Education in India

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

1. 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.
2. It may shift the attention from the primary goal of the learning process to developing ICT skills, which is the secondary goal.
3. 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.
4. Also since not all teachers are experts with ICT they may be lax in updating the course content online which can slow down the learning among students.
5. The potential of plagiarism is high as student can copy information rather than learning and developing their own skills.
6. There is a need for training all stakeholders in ICT.
7. The cost of hardware and software can be very high.

*Assistant Professor, Department of Education Pragya College of Education Bahadurgarh
**Assistant Professor, Department of Education Pragya College of Education Bahadurgarh

CONCLUSION

Education is the driving force of economic and social development in any country. Considering this, it is necessary to find ways to make education of good quality, accessible and affordable to all, using the latest technology available Use of ICT in education develops higher order skills such as collaborating across time and place and solving complex real world problems. ICT integration in higher education brings a change in student and teacher learning behavior and the Collaboration of all stakeholders in the universities and colleges by sharing the information for mutual benefit. Thus the successful integration of ICT in higher education dependson the collaboration of national policies and institutional policies. The actions taken for the implementation of ICT needs to be a proper action plan and training to all stakeholders involved in the integration and bring change on them. In addition to this there should be proper controls and licensing, quality assurance and accreditation of technology must be compulsory to reduce the complexities of implementation.

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*Assistant Professor, Department of Education Pragya College of Education Bahadurgarh
**Assistant Professor, Department of Education Pragya College of Education Bahadurgarh