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Role of Information and Communication Technologies to Enhance the Quality and Accessibility of Higher Education

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Introduction:

As the world is moving rapidly into digital media and information, the role of Information and Communication Technology (ICT) in education is becoming more important in the 21st century. ICTs hold a vital role to play in changing and modernizing educational systems and ways of learning. ICT is a vehicle to enhance the quality of the education. The use of ICT in educational settings allows the academic Institutions to reach lacking groups and new international educational markets. ICT has the potential to eliminate the barriers that are causing the problems of low rate of education in any country. It can be used as a tool to overcome the issues of cost, less number of teachers, and poor quality of education and to overcome time and distance barriers. ICT increases the flexibility of delivery of education such that learners can access knowledge anytime and from anywhere, it also, facilitates collaboration, sharing of best practices and knowledge across the world by breaking distance barriers among geographically distributed students. For example students can browse through e-books and also have an easy access to resource persons, experts, all over the world. Thus, use of ICT in education encourage and support independent learning and make education to more student-centered learning settings. In consequence the integration of ICT with education can give a new charter of life to teachers and students.

Review of literature:

The demand for education in developing countries like India has skyrocketed for the motive that education is seen as a significant means for social, economic and political upward mobility (Amutabi and Oketch 2003). India depends on the development of its educational sector. Higher education in India like other developing countries serving as repositories of knowledge and human capital has to innovate to contribute to the economic development. In this environment admittance to quality in higher education for all has appear as determining aspect of economic growth and development. Demand for skilled and competent manpower is ever rising in the modern globalised society. In India there is an evil limit on the availability of skilled labor (Agarwal, 2006).

There exist snag in general education in all over the world as well as in India like lack of learning materials, teachers, remoteness of education facilities, high dropout rate etc (UNESCO,2002).The overall position of higher education is depressed in the country. There are numbers of barriers exist for people who inclination to pursue higher education such as socio-economic, cultural, time and geographical (Bhattacharya and Sharma, 2007).

ICT has the prospective to eliminate the hurdles that are root the problems of low rate of education in any country. It can be used as an instrument to hit the issues of poor quality of education, less number of teachers, cost, and to hit time and distance barriers (McGorry, 2002). ICTs are considered as a solution for such problems, providing access to increasingly diverse demography of students and faculty and improving both the quality of educational content. Students and faculty are required to be part of the virtual knowledge enterprise but not only expected to participate in the conventional "chalk 'n talk" teaching and learning process. ICT has the prospects to improve the educational system to a great extent and transform the nature of education. Use of ICT will not only improve learning environments but also prepare next generation for future lives and careers.

Information and Communication Technologies (ICT)

ICT refers to technologies that provide access to information through telecommunications. It is alike to Information Technology, but focuses mainly on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums. According to UNESCO (2002) information and communication technology (ICT) may be considered as the combination of 'Informatics technology' with other related technology, specifically communication technology. The various kinds of ICT products available to education, such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audiocassettes and CD ROMs etc have been used in education for different purposes (Sharma, 2003; Bhattacharya and Sharma, 2007). Blurton (2002) defined ICT generally as a varied set of technology tools and resources for communicating, creating, disseminating, storing, and managing information.

Integration of ICT in Higher Education

The present age is the age of technology, whereby technology plays an essential role in the education system. There is a worldwide need felt for integrating ICT into education in order to get better the pedagogy to reproduce the societal change (Plomp et al, 2007). Drent and Meelissen (2008) mentioned that the implementation of ICT in education has become an important topic in research on educational restructuring.

ICTs in education systems engage the adoption of general components of information and communication technologies in the teaching learning process. Watson and Watson (2011) stated that these technologies has been recognized as an important tool for realizing a new pattern of learner-centered education that better supports learners' needs through distinguished and modified instruction. Bush & Mott (2009) found that components such as providing interactive content, giving immediate feedback, diagnosing student needs, providing effective remediation, assessing learning, and storing case of student work were critical elements in digital technology.

James & Hopkinson (2009) mentioned that the integration of ICT in higher education is 'inevitable'. Kirkup & Kirkwood (2005) found that ICT has become common place at home, at work, and in educational institutions. The field of education has been affected by ICTs as well as affected teaching, learning and research (Yusuf, 2005). Wood (1995) confirmed that the development of ICT has dramatically redesigned teaching and learning processes in higher education. Balasubramaniam et al. (2009) recommended that ICT use everywhere up to greater extent within higher education involved in administration, academic community engagement, and advance research.

Hawkridge et. al. (1990) recommended that the use of ICT might advance teaching, performance and administration and contain a positive impact on education as facilitate in liberation and transformation. The use of ICT nearby powerful learning environments and can alter the learning and teaching process with the intention that students can deal with knowledge in an active, self directed and productive way (Volman & Van Eck (2001). Plomp et al. (1996) considered that the ICT must be used to enlarge students' skills for collaboration, communication, resolving problem and lifelong learning. Use of ICT in education make possible to develops better sort of skills such as collaborating across time and place and solving multifaceted real world problems (Bhattacharya and Sharma, 2007; Lim and Hang, 2003). ICT growing power and competence are generating a change in the learning environments existing for education (Pajo & Wallace (2001).

ICTS HELP TO EXPAND ACCESS TO EDUCATION: ICT allow our access to information, enables new forms of communication, and serves many on-line services in the field of education. It free both the teacher and the student in the scholarly enterprise by eliminate traditional boundaries and restrictions to knowledge via the open and everywhere access that it offers.

a) **ICT Increasing Access to Higher Education:** ICTs are a potentially prevailing tool for extending educational opportunities, underserved community—spread and rural populations as well as all others who for reasons of cost or because of time constraints are unable to enroll on campus.

1. **Whenever, wherever:** One important characteristic of ICTs is their ability to go ahead of time and space and increasing the flexibility of delivery of education so that learners can access knowledge from whenever, wherever. ICT has the potential to eliminate communication barriers such as space and time (Lim and Chai, 2004). Young (2002) found that ICT facilitated educational programs by removing several restraints of the geographical, time and physical. ICT eradicate time barriers in education for learners, Course materials can be retrieved and used 24 x 7. Thus, ICT enabled education will eventually lead to the democratization of education and make it viable to achieve learning which is demonstrated by a time delay involving the delivery of instruction.
2. **Access to remote learning resources:** With the commencement of the internet and the World Wide Web, it is now possible to gain access to an unlimited amount of data and educational materials. Data in almost any subject and in a variety of forms of media can be accessed from anywhere at different times of the day and by an unrestricted number of individuals. Through ICT People have to access knowledge to carry on speed with latest improvements (Plomp, Pelgrum & Law, 2007). ICTs also smooth the progress of access to resource persons—mentors, experts, researchers, professionals all over the world.

b). **ICT Enhance the Quality of Education**: Yuen et. al. (2003) stated that ICT advances the quality of education by facilitating self-learning, learning by doing, ability to communicate, critical thinking, and problem solving, information seeking and analysis, real time discussion, delayed time discussion, on line for instruction, and cooperate with each other. Through ICT, high quality of education can offer. Researchers have also found that computers boost teaching and learning by giving opportunities to put into practice and to examine, offering superior access to related object and teaching and learning materials.

ROLE OF ICT IN HIGHER EDUCATION: The ICT plays significant role in higher education. It improves the learning process and facilitates the education system.

- Improve Teaching Learning Process: ICT make the teaching and learning process more effective and interesting. For example, when a teacher uses audio, video, or power point presentations in his/her lecture, the whole class becomes more attentive about the lecture and which automatically help the students to recognize the things easily.
- Mode of Course Delivery: Distance learning with course delivery through Internet (virtual class rooms) satellite and other mediums facilitates the education.
- Vast Variety of Study Material: Use of ICT facilitate for students to get variety of study materials on a particular topic using internet from anywhere and anytime.
- **Administrative Support Functions:** ICT in administration of educational institutions play a major role in efficient utilization of existing resources and simplifies the administration tasks by reducing the paper work. It replaced the manual maintenance of record keeping to electronic maintenance of records which helps in easy retrieval of any information of students. ERP systems implemented in universities help complete student tracking and management aspects including admission, enrolment, fees payment, examination etc.
- **Assist in Research Activities**: ICT tools have also been extensively applied for research around the world where the information can be found easily. The researchers have a provision of online access of thousands of journals, articles, e-Books and publications etc. for their research work rather than the library book shelves and researcher also have a provision to submit online publications.

CHALLENGES IN INTEGRATING ICT IN EDUCATION

While considering the benefits associated with ICT but there are many challenges, which obstruct the exploration and exploitation of its opportunities. In view of integrating ICTs in higher education have following key challenges:

- **ICT Infrastructure**

The chief challenge before ICT to improved higher education is the availability of ICT infrastructure. In India large areas are still without a reliable supply of electricity, Internet service for on line learning and the nearby telephones are miles away and non-availability of suitable rooms or buildings to house the technology and access to computers in universities, communities.

- **Language and Content**

English is the dominant language of the Internet. A large part of the educational software produced in the world market is in English. In India where English language proficiency is not high, mainly outside metropolitan areas, this represents a serious barrier in exploiting the educational benefits of the World Wide Web.

- **Challenges related to finance**

Implementation of ICT in educational institutions is one of the big challenges due to high cost incurred for acquiring, installing and replace of latest software.

- **Lack of competent & professional teachers:**

Enormous mass of teachers are not expert users of technology, particularly computer technology.

Conclusions:

Education is main driving force of economic and social development in any country. It is necessary to find ways to innovatively integrate ICT in higher education to solve issues massification, diversification, internationalization and marketing of higher education in the region to ensure that good quality, accessible and affordable higher education is available to people in the developing countries. Thus ICT in education improves teaching learning process, provides the facility of online learning to thousands of learners who can not avail the benefits of higher education due to several checks, such as, time, cost, geographical location, etc. Reducing costs per student and rising enrolments and makes the provisions for employers and encourage enduring learners (Ozdemir & Abrevaya (2007). Learners are capable to access qualitative learning environment from anywhere and at anytime. This flexibility has heightened the accessibility of just-in-time learning and provided learning opportunities for many more learners who previously were constrained by other commitments (Young, 2002). It permits the academic Institutions to reach remote areas and new international educational markets. However there subsist a number of challenges to introducing ICT in education such as ICT Infrastructure, Language and Content, lack of ICT Skills among Teachers. ICT enabled education will eventually lead to the democratization of education.

REFERENCES

• Agarwal, P. (2006). Higher education in India: the need for a change, Indian Council for Research on International Economic Relations. | • Amutabi, M. N. & Oketch, M. (2003). Experimenting in distance education: The African Virtual University (AVU) and the paradox of the World Bank in Kenya. International Journal of Educational Development, 23(1), 57-73. http://dx.doi. 1016org/10. /S0738-0593(01)00052-9) | • Bhattacharya, I. & Sharma, K. (2007). India in the knowledge economy – an electronic paradigm, International Journal of Educational Management, 21(6),543-568. | • Blurton, C. (2002). New directions of ICT-use in education. [viewed 27 April 2011] http://www.unesco.org/education/educprog/lwf/dl/edict.pdf | • Balasubramanian, K., Clark-Okah, W., Daniel, J., Fereira, F., Kanwar, A., Kwan, A., Lesperance, J., Mallet, J., Umar, A. & West, P. (2009). ICTs for higher education: Background paper from the Commonwealth of Learning. Paris: UNESCO. [viewed 28 April 2013] | • Bush, M., & Mott, J. (2009). The transformation of learning with technology. Educational Technology, 49(1), 3–20. | • Drent, M. and M. Meelissen (2008). Which factors obstruct or stimulate teacher educators to use ICT innovatively?" Computers & Education 51(1), 187-199. | • Hawkridge, D., Jawoski, J., & McMohan, H. (1990). Computers in the Third World Schools: Examples, Experiences and Issues, London. | • James, P. & Hopkinson, L. (2009). Sustainable ICT in further and higher education. UK: JISC. http://www.jisc.ac.uk/media/documents/publications/rptgreenictv1.pdf [viewed 26 April 2013] | • Kirkup, G. & Kirkwood, A. (2005). Information and communications technologies (ICT) in higher education teaching: A tale of gradualism rather than revolution. Learning, Media and Technology, 30(2), 185-199. http://dx.doi.org/10.1080/17439880500093810 | • Lim, C. P. & Chai, C.S. (2004). An activity-theoretical approach to research of ICT integration in Singapore schools: Orienting activities and learner autonomy, Computers & Education, 43 (3), 215—236. | • Lim, C. P. & Hang, D. (2003). An activity theory approach to research of ICT integration in Singapore schools. Computers & Education, 41(1), 49-63. http://dx.doi.org/10.1016/S0360-1315(03)00015-0 | • Ozdemir, Z. D. & Abrevaya, J. (2007). Adoption of technology-mediated distance education: A longitudinal analysis. Information & Management, 44(5), 467-479. | • Pajo, K., & Wallace, C. (2001). Barriers to the uptake of web-based technology by university teachers. Journal of Distance Education, 16, 70–84 | • Plomp, Tj., ten Brummelhis, A.C.A., & Rapmund, R. (1996). Teaching and Learning for the Future. Report of the Committee on MultiMedia in Teacher Training (COMMITT). Den Haag: SDU. | • Plomp, T.; Pelgrum, W. J. & Law, N. (2007). SITES2006—International comparative survey of pedagogical practices and ICT in education, Education and Information Technologies 12(2), 83-92. | • Sharma, R. (2003). Barriers in Using Technology for Education in Developing Countries, IEEE0-7803-7724-9103.Singapore schools', Computers & Education 41(1), 49--63. | • UNESCO, (2002). Open and Distance Learning Trends, Policy And Strategy Considerations, UNESCO. | • UNESCO (2002). Information and Communication Technology in Education–A Curriculum for Schools and Programme for Teacher Development. Paris: UNESCO. | • Volman, M., & Van Eck, E. (2001). Gender Equity and Information Technology in Education: The Second Decade. Review of Educational Research, 71(4), 613–634. | • Watson, S. L. and W. R. Watson (2011). The Role of Technology and Computer- Based Instruction in a Disadvantaged Alternative School's Culture of Learning, Computers in the Schools 28(1): 39-55. | • Wood, D. (1995). Theory, training, and technology: Part I. Education and Training, 37(1), 12–16. | • Young, J. (2002). The 24-hour professor. The Chronicle of Higher Education, 48(38), 31-33.pap13 | • Yuen, A.; Law, N. & Wong, K. (2003). ICT implementation and school leadership Case studies of ICT integration in teaching and learning, Journal of Educational Administration, 41(2), 158-170. | • Yusuf, M.O. (2005). Information and communication education: Analyzing the Nigerian national policy for information technology. International Education Journal, 6(3), 316-321.