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ICTs: Tool for Improving Quality of Teacher Education

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ABSTRACT
India is changing and is transforming in the skills, capabilities and attitudes of the masses. That requires a shift in pedagogical delivery used in the current education system. This paper is intended to promote integration of ICTs in teacher education and for imparting easily accessible, affordable and quality education leading to the economic and intellectual stimulus. The hardware, software, the methods and know how required or used in acquiring, storing, processing and displaying data and information is collectively known as Information Technology (IT). Also on other hand, developments and achievements in communication technology and programs and the methods used to ensure transmission of message correctly, efficiently and cost effectively are collectively known as Communication Technology (CT). this was developed in second World War. Both IT and CT became complementary to each other and started moving together and a new term immerged named as Information and communication Technology (ICT). And what we understand today, ICT means Information and Communication Technology that refers to a range of electronic tools for storing, displaying, and exchanging information and for communicating. ICT is much more than simply computers and the Internet. In a developing country like India where computers and internet are limited to mostly urban areas and use of other electronic devices and technologies is critical.

Key Words: ICT , Teacher Education , Improving Quality , Integration

INTRODUCTION
In the past few years there has been a paradigm shift in curriculum where teacher acts as a facilitator in a student centered learning. Traditionally, student centered learning focuses on the student's needs, abilities, interests, and learning styles with the teacher as a facilitator of learning. ICTs increases the flexibility of delivery of education to each of the learners who can access the knowledge anytime and from anywhere. The influence can be seen as the way students are taught and how they learn. The main focus is that the processes are learner driven and not by teachers. This in turn prepare the learners for lifelong learning in a better way. Here students have to be active responsible participants in learning process. Teacher play a strategic role in the ICT based education supplementing various ICT tools to make the teaching-learning process effective. Despite the increasing use of ICT, the need for teachers is not replaced and placing ICT in schools will automatically improve the quality of education that children receive but somehow,the Internet is unsafe for children to use because there is so much dangerous material available on it.

ICT has changed the ways people live and work. It contributes to improve the quality of learning and the economy. Therefore, provides several substantial and non-substantial benefits for all stakeholders involved in the economic growth of the country through the availability of best practices and best course material development in education, shared by means of ICTs. It can be used as substitute of better teaching. ICTs also allows the disadvantaged groups to be inclusive in the main streams. Especially in developing countries like India, effective use of ICT for the purpose of education has the potential to bridge the digital divide. Countries using ICTs extensively have become Knowledge

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Societies that are reliant creating, sharing and using electronically communicated knowledge for their prosperity. Education is the driving force of economic and social development in any country (Cholin, 2005; Mehta and Kalra, 2006). Therefore, they should be encouraged to find ways to make education of good quality, accessible and affordable to all, using the latest technology available. Role of teachers seems to be crucial as the 'agents' of change (OECD 2001; Semenov 2005), in integration of ICT into curriculum and pedagogy. Rishon Le-zion, Israel (OECD 2001) analyzed the impact of innovation in teaching — learning methods implemented in a school and observed the ICT a vital and essential means of learning in all subject matters, grades and at all times. Students were fostered and led by their teachers in an effort to improve their ICT skills in appropriate usage of technology in pedagogical practices. Literature showed that the effective uses of ICT delivery systems to meet challenges of: Provision of basic infrastructure and teachers; Overall and sustained enhancement of ICT skill-levels of teachers; Motivation of teachers, curriculum designers and other stakeholders to integrate ICT into curriculum and pedagogy. Vidya Bhawan Society and Azim Premji Foundation in 2008 in a significant study on Computer Assisted Learning in the states Karnataka, Tamil Nadu, Andhra Pradesh and Uttarakhand found that in all the states and almost all the categories, more than half the programmes were not functioning and among those that were functioning majority turned out to be under the categories average or poor, teachers from all states felt that computers and technology classrooms and that are essential in today technology is not just meant for private schools and that computers do not decrease the role of teachers in classroom and teaching does not get diluted due to CAL and neither are learning opportunities reduced due to CAL.

Improving Quality of Education: The web and the Internet is the core ICTs to spread edUcation through e-teaming. The components include e-portfolios, cyber infrastructures, digital libraries and online learning object repositories. All these components create a digital identity oft h stakeholders in the education. It also facilitates inter disci 1. student and connect all the nary research (Chandra and Patkar, 2007). Use of ICTs in creation of digital resources like digital libraries where the students, teachers and professionals can access research material and course material from any place at any time. Networking of academics and researchers and sharing of scholarly material to avoids duplication of work. Use of ICT in education develops higher order skills such as collaborating across time and place and solving complex real world problems. E-leaming allows, dialogue and feedback over the Internet, higher participation and greater interaction, and mass customization in terms of content and exams and challenged face-to-face traditional education. E-education can be a best means to access to the best gurus and the best practices or knowledge available. Therefore, the use of ICTs to prepare the workforce for the in society. Impact of ICTs can be seen in the improvement of the quality of education by facilitating learning by doing, real time conversation, delayed time conversation, directed instruction, self-learning, problem solving, information seeking and analysis, and critical thinking, as well as the ability to communicate, collaborate and learn. It is also evident that through practical experience in the world indicates that investing in an ICT experience contributes mainly to knowledge capital. Research findings showed that technology support helps in pedagogical, curricular, and assessment reforms, students and teachers plan their learning activities and build on each other's ideas to create new knowledge. It also facilitates monitoring of their progress in understanding and preparation for lifelong learning and participation in the information society and plays a valuable role to monitor and log the progress of the students across time, place and varied activities. However,

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with the help of ICT one can transfer the responsibilities to the students so that they can self manage. It helps to individualize the teaching or guidance method as per the student's need. India is making use of powerful combination of ICTs such as open source software, satellite technology, local language interfaces, easy to use human-computer interfaces, digital libraries, etc. with a long-term plan to reach the remotest of the villages. Community service centres have been started to promote e-learning throughout the country. Some of the initiatives of use of ICT in education in India include:

National Mission on Education through Information and Communication Technology (NMEICT) Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in anytime anywhere mode. Some of the achievements of NMICT are establishment of 1 Gbps optical fiber connectivity to 419 universities/ university level institutions, National Program on Technology Enabled Learning (NPTEL), Consortium for Educational Communication (CEC) tasked for e-content generation in collaboration with its 17 media centers, Virtual Labs, Talk to a Teacher, National Digital Library, e-Yantra, : E-Kalpa, Awareness/ Dissemination on National Mission on Education through Information & Communication Technology.

Vidwan: Expert Database and National Researcher's Network - Study Webs of Active Learning for Young Aspiring Minds (SWAYAM): MOOCs (Massive Open Online Courses) have emerged as the most inexpensive mechanism for offering quality education online, to a very large number of learners (NMEICT Project). There are around 32 TV channels of MHRD, where lesson on each of the school and university subject are broadcasting everyday. - Indira Gandhi National Open University (IGNOU) uses radio, television, and Internet technologies. National Programme on Technology Enhanced Learning: a concept similar to the open courseware initiative of MIT. It uses Internet and television technologies

(National Programme on Technology Enhanced Learning, India. Eklavya initiative: Uses Internet and television to promote distance learning, a joint initiative of IGNOU and IIT (EKLAVYA Technology Channel, India) IIT-Kanpur has developed Brihaspati, an open source e-learning platform mobile-learning centre by Jadavpur University (Bhattacharya and Sharma). Premier institutions like IIM-Calcutta have entered into a strategic alliance with NIIT for providing programmes through virtual classrooms. - IIT-Bombay has started the program of CDEEP (Centre for Distance Engineering Education Program), classroom interaction through the use of real time interactive satellite technology (Centre for Distance Engineering Education Programme.

TOOLS

The various kinds of ICT products available have relevance to education, like teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audio cassettes and CD ROMs etc. have been used in education for differentpurposes. Tools include Radio, T.V, Internet, Mobile phone, Computer, laptop, tablets and many other hardware and software applications and each of these have their own implication in Education. 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, documents. Utilizing radio and television have high initial start-up/capital costs generally, but once they are up and running, on-going maintenance and upgrade costs are much lower. ICTs in education, many seen as important tools in fostering more learner-center instructional models than instructor center models. Situating tool: It creates situations, which the student experiences in real life. Setting up the use of radio in combination with school-based educational resources and a variety of

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pedagogical practices. The emerging practice of 'multi-channel learning', which focuses on enriching the educational experience by engaging all resources available to connect learners with information, knowledge, and stimulation, and to mediate those interactions, provides valuable insight. - Constructive tool: To manipulate the data and generate analysis. - Communicative tool: It can be used to remove communication barriers such as that of space and time. TV may be used with success as a mechanism for reaching out-of-school youth and it proved in some of the countries. Utilization of ICTs (like radio and the Internet, and to a lesser extent television) to create and broadcast educational content for the needs of specific communities employing local languages. Emerging Internet technologies, especially recent and emerging wireless protocols (including 802.11, and shortly WiMax), are thought to have much potential for providing connectivity to remoter areas. Although the researches are little but the uses of handheld devices (including personal digital assistants and mobile phones) in education is playing a great role in call up the knowledge. Successful ICTs initiatives meet three intertwined objectives: availability, access, and demand. Indian Government has announced 2010-2020 as decade of innovation. For innovation reasoning and critical thinking skills are necessary and foundation of these can be laid only at primary level of education. In the present scenario the students, who enter in the school is very curious, creative, and capable of learning many things. At this level, use of ICTs is very much true in case of teaching — learning process. The mission of Make in India be may be seen in the use of the scope of ICTs tools. Various programs running on EDUSAT are also very helpful for the students. Edusat project is implemented at school and college level in Haryana and is being used for transmitting lessons as per syllabi.

SUMMARY AND CONCLUSIONS

India is going through the transforming itself through changes in the curriculum which support fundamental economic and social transformation in the society. Such transformations require new kinds of skills, capabilities and attitudes, which can be developed by integrating ICTs in education. The overall literature suggests that successful ICT integration depends on many factors. All the national policies, school policies as well as actions have a deep impact and should work in the positive direction. For a shared vision among various stakeholder collaborative approach should be adopted and attitudes and beliefs of all should be cared. In addition, ICTs increased the access of education regardless of time and geographical barriers. ICTs may influences the way the students are taught and how they learn and would enable development of collaborative skills as well as knowledge creation skills. This in turn would prepare the learners for lifelong learning and improve the quality of learning and thus contribute to the economy. Similarly, wider availability of best practices and best course material in education, which can be shared by means of ICTs, and will foster better teaching. However, there exist some risks and drawbacks with introducing ICT in education which have to be alleviated. Successful implementation of ICTs lead more influencing and empowering change in teachers and would support them in their engagement with students in learning rather than acquiring computer skills and obtaining software and equipment. ICT enabled education will ultimately lead to the democratization of education.

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