

Information and Communication Technology in Teacher Education: Prospects and Challenges

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ABSTRACT

This paper outlines challenges that today's teacher education is facing. Information and communication technology holds a central position in today's society posing also demands for today's schools and teachers. The ICT revolution has influenced almost every aspect of human being including education. Teacher need to move with the times. For this the training of teacher in ICT skills is must. The role of ICT tools in education should be more emphasized despite the heavy investment on ICT infrastructure, equipment and professional development for improved education. However, the adoption of ICT and its integration in teaching and learning have met challenges. Here, the need, approaches, challenges of ICT in teacher education are discussed with the changing roles of teacher.

Keywords: Teacher education, ICT, revolution, education

A nation's development potential depends upon its ability to continuously educate its population and create armies of skilled manpower. In order to produce useful and successful citizens, it is important that the education provided to the school going children and youths are of the highest quality. Kothari Commission (1964-66) remarks that '*The destiny of India is being shaped in her classrooms.*' This statement clearly indicates that the quality of education provided to the youths is greatly influenced and determined by the quality of teachers.

In the present day scenario, there are innumerable innovations and changes in life in general and in education in particular and the use of Information and Communication Technology (ICT) in acquiring knowledge and skill has become an essential element in education and training. These ICT elements in the educational process have magical

effects. Higher education without the support of ICT makes the lives of learners and teachers equally difficult. Now the world has come to a level where a nation's intellectual strength depends on ICT support. The use of computing and communication technology to enhance the efficacy of transaction and productivity is the driving force in this new era of social and economic transformation in the new society called Information Society. A strong ICT infrastructure can give an institution a competitive advantage for the best students and faculty and an advantage in competition for absorbing external research grants to execute studies, research etc, in a shorter time and with great resolution. The quality of an institution's environment for digital information storage and retrieval becomes more important than the institution's conventional, library resources in print media.

Role of ICT in Teacher Education

The use of ICT in the Teacher Education institutions will enable the teacher educators:

- ⊙ improve their teaching skill
- ⊙ make classroom transaction more effective
- ⊙ help teachers adopt innovative method of teaching
- ⊙ make teacher trainee/student more active in their learning
- ⊙ Improve professional development and
- ⊙ Improve educational management

Need and Prospects of ICT in Teacher Education

As per the latest figures available (U-DISE 2014-15), there were 233517 secondary schools in India with a total enrollment of 38 million adolescents in Class IX and X. At the same time, there were 23 million students admitted to Class XI and XII in 109318 Senior Secondary Schools.

The Government of India, realizing the potential of ICT to transform the classrooms has acknowledged the need to integrate technology at secondary level of education. Recognising the possibility of improving quality of education through use of technology, the National Policy of Education (1986, modified in 1992) had stressed the need to use technology in education. In recognition of the importance of ICT in education, the Computer Literacy and Studies in Schools (CLASS) project was introduced as a pilot project in 1984-85 with the help of BBC micro-computers. The project was adopted as a Centrally Sponsored Scheme during 8th Five Year Plan (1993-98) which was confined to only higher secondary schools. The National Task Force on Information and Software Development (IT Task Force) constituted by the Prime Minister in July 1988 made specific recommendations on introduction of IT in the education sector including schools, for making computer accessible through the Vidyarthi Computer Scheme, Shikshak Computer Scheme and School Computer Schemes and School Computer Schemes. Smart schools were recommended on a pilot basis in each state for demonstration purposes.

It was also stipulated that 1 to 3% of the total budget was to be spent on provision of computers to all educational Institutions up to secondary and higher secondary level during the next five years.

Based on the experience gained so far, a need for a revision of the scheme of ICT @ Schools was felt to expand the outreach of the scheme to cover all Government and Government aided secondary and higher secondary schools in the country with emphasis on educationally backward blocks and areas with concentration of SC, ST, minority and weaker sections.

Although in the past there existed common fear that computers or ICT as we now understand it, will replace a teacher, it has now been realised by the teaching community that ICT is primarily to empower them and not to replace them. ICT is therefore not to be feared but to be embraced so as to empower our future generations by providing them high quality ICT – enabled education. ICT in education in general and in teacher education in particular, is the need of the hour as it has the potential to provide solution for many of the challenges education faces today.

There is a vital need to explore efficiencies in terms of program delivery and opportunities for flexible delivery provided by ICTs. The capacity of technology is to provide support for customized educational program to meet the needs of individual learners. Along with the emergence of learning as communication technologies there has also been growing awareness and recognition of alternative theories of learning which are based on constructivist's principles. Learning approaches using ICTs provide many opportunities for constructivist learning through their provision for resource-based, student – centered settings.

There has been a long and ongoing debate that teachers are becoming redundant as a consequence of the use of ICT in education. However, new educational technologies do not curb the need for teachers but they just call for a redefinition of the teaching profession.

The roles of teachers have changed and continue to change from that of instructors to that of

constructors, facilitators, coaches and creators of learning environments. There are several reasons why the role of the teacher must change:

1. Certain existing resources will become obsolete as a result of using ICT in teaching-learning. Resources such as overhead projectors and chalkboard may no longer be necessary if all learners have access to the same networked resource on which the teacher is presenting information, especially if students are not physically in the same location.
2. The assessment methods that have been used traditionally may become redundant. Online tests, for example, can provide the teacher with considerably more information than traditional multiple choices tests.
3. It is no longer sufficient for teachers to impart content knowledge. They must encourage higher levels of cognitive skills, promote information literacy and nurture collaborative working practices.
4. Today's teachers are required to be open minded analytical and independent professionals, active cooperators and collaborators, mediators between learners, what they need to know and where that knowledge can be found and providers and reinforce understanding.
5. Teachers need to possess new competencies to be able to integrate the ICTs into their lessons and develop their skill of creativity, flexibility, logistic skills (assigning work, grouping students and devising new locations for learning to take place), skills for project work, administrative and organizational skills and collaborative skills
6. A technically competent teacher must be able to - operate computers and use basic software for word processing, spreadsheets, e-mails etc., evaluate and use computers and related ICT tools for instruction apply current instructional principles, research and appropriate assessment practices to the use of ICTs, evaluate educational software, create effective computer-based presentations, search the internet for resources, integrate ICT tools into student activities across the

curriculum, create multimedia content to support instruction, create hypertext documents to support instruction, demonstrate knowledge of ethics and equity issues related to technology and keep up to date as far as educational technology is concerned.

These new responsibilities are greatly facilitated by the use of ICTs in teaching. However, a genuine and sophisticated integration is necessary, so teacher training in this regard becomes crucial.

The knowledge and skills of the faculty on technology integration should be upgraded properly among from time to time by organizing seminars, workshops, training programmes, conferences etc. For this the government agencies, corporate agencies, NGOs etc., have to take stronger initiatives. The institution and the faculty members should be aware of the latest research findings and developments in the field of technology integration.

Challenges in Using ICT in Teacher Education

Teachers have been polarized in their acceptance of the new technologies. While some teachers have enthusiastically integrated computers and the internet into the classroom, others have been cautious in their welcome and some have simply rejected the technologies.

In a study undertaken by Akbaba – Altum (2006) the general computer integration issues were slow internet connections, insufficient software in the native language, too few computers and a lack of peripheral equipment at schools. Vadhera and Hnamte (2012) in their study found that majority of the teachers in the secondary schools of Mizoram did not use technology for their teaching and even for their own professional development. Some of the challenges highlighted in this study were lack of separate teacher for ICT, insufficient training of teachers for the use of ICT in the classroom and large number of computer illiterate teachers.

Lack of infrastructure, poor funding, lack of competent resource persons are obstacles to the spreading of ICT based education and of course

there are several arguments regarding the digital divide and its consequences. Even then, many of the opinion are ICT integrated education is to be adopted and that will be the key for social change. New role of teacher should be engineered accommodating the revolution ICT has brought in the field of teaching.

The great challenge is to harness the advantage of these technologies, in order to improve the delivery and quality of educational services, as well as to accelerate the rate at which knowledge is distributed and learning chances and outcomes are equalized throughout society. The successful integration of ICTs into the classroom warrants careful planning and depends largely on how policy makers understand and appreciate the dynamics of such integration. There is more urgent need to improve the quality and equity of education to bridge the gap between developed and developing nations and ICTs are perceived as necessary tools for this purpose.

A Shift from Teaching to Learning

A shift from teacher – centered instruction to learner – centered instruction is needed to enable students to acquire the new 21st century knowledge and skills. Shifting the emphasis from teaching to learning can create a more interactive and engaging learning environment for teachers and learners. This new environment also involves a change in the roles of both teachers and students. The role of teacher will change from knowledge transmitter to that of learning facilitator, knowledge guide, knowledge navigator and co – learner with the student. The new role does not diminish the importance of the teacher but requires new knowledge and skills. Students will have new responsibility for their own learning in this environment as they seek out, find, synthesize and share their knowledge with others. ICTs provide powerful tools to support the shift to student – centered learning and the new roles of teachers and students.

CONCLUSION

Rapid changes in technology will ensure that ICT will proliferate in the classroom. The latest

ICT trends include internet, mobile learning, tele-learning and social networks. Anytime anywhere communication is happening and we must be prepared for the changes this will bring to our classrooms, as well as to our society in general. ICT require a modification of the role of teacher, who in addition to classroom teaching, will have other skills and responsibilities which will pave the way for quality education. Teachers are expected to become specialists in the use of distributed learning techniques, the design and development of shared working spaces and resources and be virtual guides for students who use electronic media. ICT helps the teacher to appreciate and adopt emerging communication technology and innovative practices. It enables the teacher to update the new knowledge and skills to use the new digital tools and resources. Quality of education is improved through diversification of contents and methods, innovation and sharing information in education. So, the teachers must have the skills of using ICT.

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