

The role of information and communication technologies in teacher education

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Abstract

It has been perceived by people since long that education is an instrument of social change and as a result it has been encouraged. The Teacher Education (TE) plays a primordial role in training the human resources which are required for the educational management not only at the school level namely, Primary, Secondary and Higher Secondary but also at D.Ed, B.Ed, B.P.Ed., M.Ed., M.P.Ed., etc. levels of late, different parts of India have witnessed the setting up of good number of institutions imparting Teacher Education under the accreditation of the National Council for Teacher Education (NCTE). Educational system around the world is under increasing pressure to use the new information and communication technologies (ICTs) to teach students the skills and knowledge they need in the 21st century. The Teacher Education system empowered by ICT driven infrastructure can have a great opportunity to come to the centre stage and ensure quality instruction, academic excellence and leadership in knowledge based society. The aim of this paper is designing and implementing successful ICT enabled Teacher Education programmes is the key to fundamental and wide range educational reforms.

Keywords: Information and Communication Technologies (ICTs), social change and Teacher Education (TE)

Introduction

Information and communication technologies (ICTs) are a major factor in shaping the producing rapid changes in society and new global economy. Within the past decade, the new ICT tools have fundamentally changed the way people communicate and do business. They have produced significant transformations in business, agriculture, industry, engineering, medicine and other fields. They also have the potential to transform the nature of education-where and how learning takes place and the roles of students and teachers in the learning process. Teacher education institutions may either assume a leadership role in the transformation of education in the swirl of rapid technological change. For education to reap the full benefits of ICTs in learning, it is essential that in-service and pre-service teachers have basic ICT competencies and skills.

Various education commissions and a number of expert committee have discussed the aims of teacher education in India. Unfortunately, barring a few exceptions, our universities and institutions of higher learning have largely not been able to live up to these great expectations. On the contrary, they have just become bodies for conducting stereotyped examinations and degree-awarding centers. The quality and reliability of such exams and degrees is also sometimes questionable. One of the main reasons is the inadequate academic, professional and pedagogic preparation and insufficient level of knowledge and the skills of the faculty. Besides this, traditional versus modern methods of teaching, outdated knowledge and information and lack of skills, teachers attitude, aptitude and authenticity of their sources of knowledge are some of the other core issues. Owing to knowledge explosion and tremendously fast changing ICT, the teachers sometimes find it rather difficult to cope with the new intellectual challenges being thrown up by the changed global and local context. Therefore, they need to acquire new knowledge, and reliable and authentic information. In present scenario, teachers need to help their students in: how to learn, how to grow in future, how to develop study skills, how to conduct fundamental research, how to examine, evaluate and

assess information and also how to question and then dismantle unauthentic structure of knowledge and cognition if need be. This is necessary if the teachers really want to survive in the ICT savvy world of education. All these expectations may be met only through need-based, goal-oriented and meaningful in-house discussion, conferences, symposia, workshops, refresher and orientation courses, crash courses, capsule courses and subject-based courses, interdisciplinary and holistic approaches to education and quality research and by enriching the existing libraries and making use of the user-friendly ICT with contextually appropriate and firm pedagogical scaffolding. The teacher educators and individual teacher ought to sincerely and persistently work hard toward this goal.

Importance and role of ICT to elevate Teachers Education

In almost all sectors of education the role of the teachers is changing from being not only a transfer of knowledge but also facilitator of the teaching-learning process. The traditional boundaries of the classroom are giving way to virtual learning and online courses. All these development would have impact on teacher education programmes. This technology invites learners to be more independent and the curriculum to be more dynamic. Teachers need to complement their pedagogy and content expertise by utilizing online facilities. Use of ICT effectively requires a change in classroom practice rather than mere acquisition of technical skills. The educational channels need to be organized, strengthened and utilized for creating awareness, strengthened, providing instructions and offering solutions of problems faced by learners of specific age group. The increasing use of technologies has brought changes in the modes and methods of instructional processes which are becoming more student-centered. New interactive relationships among teachers, learners and technologies are emerging. Teacher education programs at the in-service and pre-service levels must have scope for inducting pedagogic skills and management of technologies as important components of teaching learning environment to enhance effective to

transaction. These need to integrate teaching-related practices with the existing methodology course and introduce specialized course to equip the student-teachers with skills to acquiring and utilizing software of different kinds, operating and maintaining hardware i.e. structured teaching aids, textual materials, audio-visual cassettes, multimedia, CD ROMs and sharing information through networking in participative and collaborative methods. The application of ICT in the education setting has to be cultivated, promoted and natured. Teacher educators have to develop new understanding approaches with new developments in information technology. Their proficiency in these areas would help them to train student-teachers effectively. Teacher education institutions will have a take responsibility in using information and communication technology. As technology has created change in all aspects to society, it is also changing our expectations of what students must learn in order to function. A shift from teacher centered instruction to student centered instruction is needed to enable students to acquire the new 21st century skills and knowledge.

Role of ICT at different levels of Teacher Education

Role of ICT at Primary Level

The primary education is to be designed carefully to provide education for an all-round growth and development of the children including their new observation skills, muscular coordination, self-expression, habit formation and health and hygiene. To help primary teacher education centers do their work effectively establishment of learning resource center in a teacher education instruction has to be mandatory. Such a center may be equipped with picture books, slide showing picture of

animals, birds, flowers vegetable, fruits, audio-video tapes insects. ICT is gradually emerging as an integral part of teacher education at primary level. It influences not only learning styles but also the teaching system. ICT results in transformation from teachers oriented learning to that of exploratory self-learning.

Role of ICT at Secondary Level

Secondary education is the link between primary and higher levels and occupies a crucial position in a system of education because general education terminates here and the students at this level prepare for making choices through appropriate diversification of course. To achieve these objective;

1. ICI helps to make multiple innovative adopted for transmission of foundation restated papers and internship in teaching.
2. Making of different programmed instruction programmes and Interaction analysis.
3. Use of ICT as vital modes of transaction
4. Methods of teaching would involve use of ICT, pedagogical analysis, new evaluation techniques.

Role of ICT at Higher Level

It occupies a unique position in the system of education. As teacher education systems exist today, there are pre-service teacher education programmers such as B.Ed./D.Ed./B.P.Ed. etc for preparing teachers at primary and secondary stages. Role of ICT to elevate teacher in at higher education to empowering teachers for abstract thinking, reference political thinking, self-study and of knowledge by adopting various project works and acquire skills.

S. No.	Different Teacher Education Stage	Objective	Role of ICT
1.	At Primary level	All round growth and development of the children including their new observation skills, muscular coordination, self-expression, habit formation and health and hygiene	Establishment learning resource center “equipped with audio and audio-visual material like Radio, T.V., VCR, slide showing picture of animals, birds, flowers vegetable and fruits.
2.	At Secondary level	Integrated & holistic approach; inculcating scientific values responsive, social cultural aesthetic, Moral & transparent evaluation	Multicultural setting, training of cooperation among teachers. Skill training in undertaking Seminars & expert discussions, action research, online conference.
3.	At Higher level	Empowering teachers to guide learning for critical thinking adopting various methods such as project work & tutorials self-study, reference skills and research attitude.	Electronic information resources like e-journals, e-conferences, Global classroom, Bulletin board services and E-libraries.

Conclusion

The teacher education system empowered by ICT driven infrastructure can have a great opportunity to come up to the centre stage and ensure quality instruction, academic excellence and leadership in a knowledge-based a society. Rapid changes in technology will ensure that ICT will proliferate in the classroom. It is predicted that there will be many benefits for both the teacher and the learner including the promotion of collaborative learning and radical new ways of teaching and learning, the promotion of shared working space and resources, better access to information., ICT will also require a modification of the role of the teacher, who in addition to classroom teaching will have other skills and responsibilities. Many will become specialists in the use of distributed learning techniques, the design and development of shared working spaces and resources. Ultimately, the use of ICT will enhance the learning experiences for children, helping them to think and communicate creatively. ICT will also prepare our children for

successful lives and careers in an increasingly technological world. ICT has revolutionized the entire concept of education, learning and research by offering new opportunities and challenges in creation and dissemination of information. It is really a challenging task to strengthen ICT in teacher education because a large majority of the teacher education institutions are unequipped or under-equipped in the terms of high-tech infrastructure and digitized.

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