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Research Article

TEACHING AND LEARNING WITH ICT IN TEACHER EDUCATION

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ABSTRACT

Information and Communication Technology (ICT) has become one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing, and numeracy. There is a widespread belief that ICTs have an important role to play in changing and modernizing educational systems and ways of learning. When these technologies are applied in the field of education, it is termed as ICT in education. The teachers need to acquire new knowledge and reliable and authentic information as the burden of the development of the young generation lies on their shoulders. The acquisition of fundamental ICT skills among teachers and students helps knowledge sharing, thereby multiplying educational opportunities. However, all teachers are not willing to introduce new technologies to themselves first and subsequently to their students. Teachers have to be trained to facilitate the learning process, make the process real, achievable, challenging, yet exciting and not intimidating. ICT can be used in support of traditional teaching methodologies like the large group lecture, student note taking and examinations. Preparing future teachers who know how to integrate effective use of information and communication technologies (ICT) in their curriculum remains a challenging goal for teacher preparation programs. Students need to acquire digital age literacy skills and learn how to responsibly use technology as a learning tool for acquiring information, solving problems, sharing knowledge, creating innovative ideas and developing global awareness. It is high time for the teachers to acquire mastery over the technical know how or else the teachers who are literates and supposed to spread literacy may be treated as illiterates in the present scenario.

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INTRODUCTION

The world has entered the information age by information explosion. Societies in the 21st Century expect all children to be prepared to think critically, solve problems and be creative. The achievement of this expectation rests, first and foremost, upon the development of a highly qualified and committed teaching force. In other words, the knowledge, skills, abilities and commitments of teachers prepared today will shape and inform what is possible to the future generation of students. Teacher is considered to be the architect of the nation. In other words, the future of the nation lies in the hands of teacher. This shows the importance of teacher. One can realize how important education is which makes one a teacher. Teacher education is looked after by a systematic operation of various agencies involved in it. In our country, no system is free from problems; teacher education is not an exception to it.

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.

Technologies have the potential to enhance access, quality, and effectiveness in education in general and enable the development of more and better teachers in India. During the past decades there is growing interest in the ways in which teacher and student educators learn to use ICT in their teaching.

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ICT is a tool which if used effectively, can show learners that education is something which they can do for themselves. Development of ICT has provided new opportunities for delivering instruction in schools in innovative ways. At the same time, the constructivism movement in instructional design emphasizes the importance of providing meaningful, authentic activities that can help the learner to construct understanding and develop skills relevant to solving problems and not feeding them with more and more information. 'Knowledge is built by the learner, not supplied by the teacher' says Paper (1990). Creating such learning environments seems intrinsically problematic in the traditional setting. ICT assist in creating such an environment. Therefore, it is important that careful planning and design is employed to the possible extent, and that the environment also includes proper support and guidance and rich resources and tools.

Hence new learning and teaching strategies may have to be introduced to prepare students to become independent learners. Through the use of technology teachers can provide opportunities for the students to learn think critically and discuss among their peers supported by ICT (Olsen, 2000). According to Verma (2010), a teacher plays a significant role not only in class teaching learning situation but in social engineering too. Society gives a respectable place to teachers who are really perspective empowered. This empowerment is not at in terms of physical perspective. It is in academic, intellectual, social, and national perspectives.

Nowadays, teaching is becoming one of the most challenging professions in India where knowledge is expanding rapidly and much of it is available to students as well teachers at any time and anywhere. As teacher education is primarily directed towards preparing teachers, the quality of teacher education relies on the teacher trainee's abilities and skills. Teacher educators have to accept the demands of modern world and modify their old concepts and methods according to the needs of learners. Otherwise the teachers will become out-dated in the coming future and it will deteriorate the quality of teacher education.

Need and Significance of ICT in Teacher Education

New technologies have provided new possibilities for the teaching profession. However, teacher educators and teacher trainees have to learn how to use these new technologies in the classroom situations. Most of the teacher education institutions are facing difficulties like shortage of ICT trained qualified teacher educators, weak curricula, lack of ICT equipment etc. Perhaps one of the greatest challenges facing teacher education today concerns the preparation of good quality teachers capable of using ICT effectively. Unless and until they are trained we cannot expect any qualitative Integrating ICT in Teacher Education changes in teaching.

ICT and Teacher Education

Primary uses of ICT are of development of teaching skills and providing tools for teachers and students. Successful education applications of ICT are involving a complex, interplay of contexts, people, activities, machines and available software within specific setting. The use of ICT in the educative process has been divided into two broad categories. ICT for education and ICT in education. ICT for education refer to the

development of ICT specifically for teaching, learning purposes, while the ICT in education involves the adoption of general components of ICT in the teaching learning process. There are a variety of approaches to professional development of teachers in the context of use of ICT in education. Professional development to incorporate ICT into teaching and learning is an ongoing process and should not be thought of as one 'injection' of training. Teachers need to update their knowledge and skills as the school curriculum and technologies change. Two aims of teacher training are fundamental: teacher education in ICT; and teacher education through ICT.

Historical Perspective of Teacher Education in India in respect of ICT

In India, there are nearly 3.5 million teachers in the formal school system. Primary school teachers are required to have 10–12 years of general schooling and 2 years of professional education. Secondary teachers must have a graduate degree from a university along with one year of professional education. There are several institutions and systems for pre-service education of teachers, ranging from school complexes at decentralized levels to programs designed and executed at the central level, but coordination among various agencies is yet to be obtained. In comparison with other states, Andhra Pradesh with respect to the growth of higher education is high. Currently there are 50 universities, 660 college of education for teacher education. With the view to promoting and motivating quality researching teacher education, the National Council for Teacher Education (NCTE) constituted a Research and Programme Advisory Committee in June 2004. The NCTE's concern is to enable teacher education institutions to prepare workforce of trained teachers who are fully conversant with the technology. It signed an MoU with INTEL Technology India Pvt. Ltd., Bangalore, on 20th December, 2006, with a view to achieve the objectives of imparting sustained professional development of all teacher educators formal recognized institutions and making ICT part of teacher education curriculum.

Importance and Role of ICT to Uplift Teacher's Education

Teacher education programs at the pre-service and in-service levels must have sample scope for inducting pedagogic skills and management of technologies as important components of teaching learning environment to enhance efficacy 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 operating and maintaining hardware, acquiring and utilizing software of different kinds i.e. structured textual materials, teaching aids, audio-visual cassettes, multimedia, CD ROMs and sharing information through networking in collaborative and participative methods. The application of ICT in the education setting has to be cultivated, promoted and nurtured. Teacher educators have to develop new understanding approaches and attitudes in harmony with new developments in information technology. The proficiency in these areas would help them to train student teachers effectively. Teacher's education institutions will have to take leadership in using information Technology. As technology has created change in all aspects of society, it is also changing our expectations of what student must learn in order to function in the new world economy.

Students will have to learn to navigate through large amounts of information, to analyze to make decisions and to master new knowledge domains in an increasingly technological society. They will need to belief long learners, collaborating with others in accomplishment complex task, and effectively using different systems for representing and communication knowledge to other. A shift form teacher centered instruction to learner centered instruction is needed to enable students to acquire the new 21st century knowledge and skills.

Paradigm Shift through ICT in Teacher Education

- Teacher centric, stable designs learner-centre, flexible designs
- Teachers direction & decisions Learner autonomy
- Passive reception in learning active participation in learning
- Learning within the four walls learning in the wider social classroom context
- Knowledge as given and fixed knowledge as it evolves & is
- Disciplinary focus
- Lerner exposure Multiple & divergent exposure

The 21st Century Teachers and Student Require the Lenses of Learning form ICT with ICT around ICT with the Skills of

- Digital are literacy Basic, Scientific, and technological literacy.
- Inventive Thinking Intellectual capital ability of manage complexity courtesy.
- Effective communication-social and personal skills-Teaming collaborative and interpersonal skills.

ICT as a facilitator to Teachers Education

In almost all sectors of education the role of the teachers is changing from being not only a transmitter of knowledge but also that of facilitator of the teaching-learning process. Owing the onset of information and communication technology new applications of technology and enhanced accessibility to it are introducing new possibilities of teaching and learning. The traditional boundaries of the classroom are giving way to virtual learning and online courses. All these development would have profound impact on teacher education programmes and processes. This technology invites learners to be more independent and the curricula to be more dynamic. Teachers need to complement their content and pedagogy expertise by utilizing online facilities. Use of ICT effectively requires a change in classroom practice rather than mere acquisition of technical skills. Teachers need to familiarize themselves with possibilities approaches and application in the use of ICT, the facilitation of teaching learning. These technologies along with overhead protector and computer projections have the potential to make teaching. Learning and training processes more efficient and cost effective. It has opened up new possibilities of reaching out to the still un-reached disadvantaged groups and children with special needs. The educational channels need to be organized, strengthened and utilized for creating awareness strengthened, and utilized for creating awareness, providing instructions and offering solutions of problems faced by learners of specific age. The increasing use of technologies has brought changes in the modes and methods of instructional

processes which are becoming more learner-centered. New interactive relationships among teachers, learners and technologies are emerging Teacher education programs at the pre-service and in-service levels must have ample scope for inducting pedagogic skills and management of technologies as important components of teaching learning environment to enhance efficacy 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 operating and maintaining hardware, acquiring and utilizing software of different kinds i.e. structured textual materials, teaching aids, audio-visual cassettes, multimedia, CD ROMs and sharing information through networking in collaborative and participative methods. The application of ICT in the education setting has to be cultivated, promoted and nurtured. Teacher educators have to develop new understanding approaches and attitudes in harmony with new developments in information technology. Their proficiency in these areas would help them to train student teachers effectively. Teacher's education institutions will have a take leadership in using information technology. As technology has created change in all aspects to society, it is also changing our expectations of what student must learn in order to function in the new world economy. Students will have to learn to navigate through large amounts of information, to analyze to make decisions and to master new knowledge domains in an increasingly technological society. They will need to be lifelong learners, collaborating with others in accomplishment complex task, and effectively using different systems for representing and communication knowledge to other.

Modern Role of Educators

Using ICT in teacher education and teacher education in ICT provide assistance in improving learning and developing efficiency, and competency in teachers. It helps to change the role of educators from traditional method to using innovative techniques method of teaching.

- Teachers are transformed into self learners.
- Teachers should plan ICT into pedagogical practices to ensure high quality and appropriate learning
- Teachers are encouraged to undertake technology integration.
- They understand the basic hardware and software skills, pedagogical application of ICT tools, Internet, e-mail, system software, open source application/productivity software.
- Contact experts by a group of student educators and teacher educators through technology.
- Create online learners through video-conferencing, discussion forum, chart, etc.
- Teachers' swifter communication presentation of ideas is more effective and relevant.
- Teachers should model the ICT integration in their academic and teaching work. They know recent methodologies and they feel empowered.

Teacher education is the stepping stone in building the future teachers. ICT in education will not function on its own. It is the teachers who are required to use the technology to enhance student learning. Competencies of integration are selection, use, mix and fusion under pedagogy and technology. So the

foremost task is the development of ICT- trained student educators. *A Teacher is successful and wanted if he uses ICT in his daily lectures/teaching.* Teacher education programs try to in-build the qualities of teacher as well as create innovative teachers.

CONCLUSION

Today education can be provided via satellite, this will save time, reduce unnecessary mobility and more. However to succeed, the digital divide need to be bridged. Institutions could use the platform of satellite TV, radio, VSAT, etc. it could even create and use distance – learning centers. Communication technology can increase the range of subjects taught. Integrating ever-changing ICT is a challenge to the academia as it throws open new corridors for both teachers and learners. Its management requires leadership, which is very well accustomed to ICT as well as new processes of e-leadership. Planning, organizing, directing and coordinating of ICT for all sectors of education will be required. It will require a massive effort on the part of all teacher educators.

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