



REVAMPING TEACHER EDUCATION THROUGH ICT INFUSION

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Abstract

ICT revolution has influenced almost every aspect of public life including education. Educational systems around the world are under increasing pressure to use the new Information and Communication Technology to teach students the knowledge and skills they need in the 21st century. Teacher education curricula in developing countries need a revamp to incorporate IT/ICT for effective technology infusion into classrooms. Teachers in India need to be prepared for imparting the new age education, and hence teacher education program in India should integrate ICT component in such a way that teachers are enabled to face the new demands in the profession. ICT Recommendations are made for effective technology infusion in developing countries in spite of prevalent handicaps. It implies a shift in the teachers' role from being the sole source of knowledge and instruction to being a facilitator of students' learning that is acquired from many sources.



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INTRODUCTION

Emergence of Information & Communication Technology is a significant event in the contemporary era and in this digital age it is important to keep pace with rapid changes that are taking place in the world, especially for a developing country like India. Digitization has brought our civilization in a new epoch, in which it has almost become a trend and has influenced every facet of human life including education. Concept of teaching and learning has also been changed greatly due to expansion of knowledge and globalization. Latest tools of ICT may contribute noticeably towards all segments of educational practices including the teacher education. So ICT is compulsorily introduced in our education system and especially in the teacher training curriculum to improve teaching-learning process.

ICT AND EDUCATION

With easy accessibility to internet and beyond imagination popularity of on line resources educationists all over the world cannot ignore its utility. In the field of education it assists the acquisition of fundamental skills and access to isolated learning resources. It also motivates to learn through active as well as mutual learning. Because of the diversity of ICT as well as their applications in educational situations, a thorough working knowledge of all these

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technologies is expected of educators in their teaching and learning process (Katz & Macklin, 2007). The National Curriculum Framework (2005) stated that “ICT if used for connecting children and teacher with scientist working in universities and research institutions would also help in demystifying scientist and their work. Every teacher should know how to use technology, pedagogy and subject area content effectively in their daily classroom teaching. It is clear that merely introducing technology to the educational process is not enough. One must ensure technological integration since technology by itself will not lead to change.” Considering rapid rate of knowledge generation and dissemination, future teachers must be capable of using a variety of technological tools to impart education in all phases of academic, administrative, research and extension functions.

NEED OF ICT IN TEACHER EDUCATION

Traditionally, the teacher used to be the complete source of knowledge for the students. But now, in many cases the teachers do not possess adequate information and knowledge to supplement the views of the students and experience around the world in developing and industrialized countries has shown that teacher training in the use and application of technology is the key determining factor for improved student performance (in terms of both knowledge acquisition and skills development enabled by technology). Information and Communication technology is not, and never will be, transformative on its own – it requires teachers who can integrate technology into the curriculum and use it to improve student learning.

While technology increases teachers’ training and professional development needs, it also offers part of the solution. Information and communication technology (ICT) can improve pre-service teacher training, by providing access to better educational resources, offering multimedia simulations of good teaching practice, catalyzing teacher-to-trainee collaboration, and increasing productivity of non-instructional tasks. ICT can also enable in-service teachers’ professional development at a distance, asynchronous learning, and individualized training opportunities.

ICT provide some concrete and unique opportunities as:

1. New technologies, both computer and web-based, allow for simulation of specific skills through mini and micro-lessons that can be watched, manipulated and tested. Also demonstrations of real teachers in real classroom settings, representing different subjects,

approaches and methodologies, may be brought into the teacher education center without having to travel to schools.

2. Through the application of ICT, appropriate parts of teacher education can be provided at a distance or virtually – into the trainee’s location, at any time and at any place, thus saving travel time and cost. ICT (videos, CD-ROMS, Internet, and software) allow teachers to learn things on demand – when they feel the need for that.
3. There are unanticipated changes in knowledge, methodologies, pedagogical issues, students, school culture – all of which a teacher is bound to deal with alone. ICT can break this professional isolation by permitting, among educators, communication, exchange of information, chat rooms, bulletin boards, discussion forums, and virtual conferences.

Finally, ICT can overcome teachers’ isolation, breaking down their classroom walls and connecting them to colleagues, mentors, curriculum experts and the global teacher community on a continuous basis.

APPROACHES TO ICT INTEGRATION IN TEACHER EDUCATION

The global challenges of education in exploring and applying ICT through effective approaches have led the teachers and students to recognize and subsequently apply them to suit the desired field. Use of ICT within teacher-training programs around the world is being approached in a number of ways with varying degrees of success. These were described and merged into following approaches as follows:

1. **Development of ICT skills approach-** this approach emphasizes on providing training for the use of ICT in general. Pupil-teachers are likely to be expert users of ICT in their daily activities. Instructions about various software, hardwares and their use in educational process are given.
2. **Pedagogy of ICT approach-** here importance is given to integrate ICT skills in particular subjects, drawing on the theory of constructivism, pre-service teachers plan lessons and activities that is based on the use of ICT tools that will encourage the accomplishment of learning outcomes. This approach is helpful to the level that the enhanced ICT skills and the pedagogy permits student to develop and keep these skills in the perspective of designing resources based on classroom situations.
3. **Specific subject matter approach-** Here ICT is rooted into one’s own specific subject. This approach helps the teachers in not only to expose the students to innovative habits of

learning, but also offer them with a practical indulgent of what the subject matter with ICT appears and feels like.

- 4. Practical based approach-** In this approach the focus is on providing practical experience to use ICT in different phases of teacher-training. Implementing ICT in their practical work like developing lessons, assignments at various levels, the pupils are offered with an opportunity to assess the facilities available at workplace and effectively use their own skills to manipulate these facilities.

ISSUES THAT CONSTRAINT THE USE OF ICT IN TEACHER EDUCATION

The change in teacher education involves concern, comprehension contemplation and caution towards ICT is a demanding and complex task. There are significant challenges in integrating ICTs use in education rising from environmental, cultural and educational faced by policy makers, educators, educational administration and students in higher education. There are following constraints for the use of ICT in teacher training:

1. The objectives regarding the application of ICT are being realized at awareness maturity level, but the use of ICT for the higher order thinking skills development, related to that not likely to be occurring.
2. There is a huge difference among curriculum of teacher education institutions and secondary schools. Curriculum of teacher training institution is not at par with school curriculum.
3. The syllabus of the teacher training course is very much vast so that the time for education of ICT in time table is not enough to develop understanding and essential skills among pupils.
4. Lack of availability of suitable infrastructural amenities at most of the teacher training institutions is also a big challenge.
5. There is a disparity between available hardware and software to develop required learning resources.
6. There is lack of staff for technical maintenance.

WILL ICT REPLACE THE TEACHER

The answer is a loud NO! Rather, with the use of ICT in the classroom, the role of teacher in the teaching learning process becomes more crucial. What can and should change is the kind of role that the teacher plays. As culture of education shifts from the “teacher-centered

model” to a “learner-centered model”, the teacher becomes less the sole voice of authority and more the facilitator, mentor and coach—from “sage on stage” to “guide on the side”.

SUGGESTIONS FOR EFFECTIVE INFUSION OF ICT IN TEACHER EDUCATION

There are some suggestions in this regard:

1. ICT needs to be offered as a compulsory and special course, integrated approach should be there along with method courses. This will help student teachers to develop the concept of ‘techno-pedagogy’ to a greater extent.
2. Respective authorities must come across the essential pre-requisites carefully and consequences of ICT integration at the level of curriculum development, the examination system and teacher incentives.
3. There must be congruence between the school curriculum and teacher education curriculum. What is needed is to design teacher education programs that make a balance between traditional pedagogy and ICT – a judicious mixture of both (Bhattacharjee, 2005).
4. Teachers should be in position to integrate technology into teaching and learning. They should be able to develop the art and skill of making use of internet technology and accessing information from it to use in throughout their teacher education experience and professional development programmes.
5. Teacher training institutions may use a variety of strategies and creative ideas to provide adequate time for professional development.
6. When students try to use technology in their classrooms, they face many difficulties and need immediate help and support so there should be easy access to technical supporting staff that helps in troubleshooting.
7. Institutionalized incentives and support for teachers are also critical. This may take the form of promotions for teachers who innovate with (as opposed to merely using) ICT in the classroom, Certification of training by Ministry of Education with grade and salary impacts, Public Recognition, Reduced Isolation and Increased Professional Satisfaction.

CONCLUSION

Since the teacher is the pivot of the entire education system and is the main catalytic agent for introducing desirable changes in the teaching learning process, all attempts are needed to make motivating teachers to become innovative and creative. Technology and teacher education is a two-way street. Information and communication technology (ICT) can be a

powerful tool in teacher preparation, continuous upgrading, and support. Likewise, teacher education and training is an obvious and well-established pre-requisite for effective integration of technologies into the education process.

"Teacher education institutions may either assume a leadership role in the transformation of education or be left behind in the swirl of rapid technological change" (UNESCO, 2002).

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