# ICT INTEGRATION IN TEACHER EDUCATION FOR ENHANCING PROFESSIONALISM

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## Introduction

Knowledge mediated by ICT has a high value not only in the academic world but also in financial, societal and governmental environments as it is highly flexible, enables fast paced activities and has a ubiquitous distributing power (Gayol, Boubsiland & Hoban, 2005). Therefore, it is required that the teachers are fully equipped with the necessary knowledge, skills and attitude to shift to the new role and are at home in the technology driven teaching learning scenario. Hence, teacher education programmes have to take care that pedagogical skills are redefined in the context of increasing use of ICT for imparting instructions. Teacher education programmes have themselves to provide a culture that encourages the use of ICT as tools for learning so that the teachers in turn are prepared to do so with their learners. For developing professional efficiency, the latest skills and knowledge associated with the profession need to be redefined in the context of ICT based teacher education programmes.

## Approaches to ICT Integration in Teacher Education

Use of ICT within teacher-training programs around the world is being approached in a number of ways with varying degrees of success. These approaches were subsequently described, refined and merged into four primary approaches as follows (Kour, 2011) :

*ICT skills development approach :* Here importance is given to providing training in use of ICT in general. Student-teachers are expected to be skilled users of ICT in their day-to-day activities. Knowledge about various software, hardware and their use in educational process is provided.

*ICT pedagogy approach :* This approach emphasizes on integrating ICT skills in respective subjects, drawing on the principle of constructivism, pre-service teachers design lessons and activities that centre on the use of ICT tools that will foster the attainment of learning outcomes. This approach is useful to the extent that the skills enhance ICT literacy skills and the pedagogy allows student to further develop and maintain these skills in the context of designing classroom-based resources. Students who have undergone this type of training have reported significant changes in their understandings associated with effective implementation strategies, as well as their self-efficacy as to their ICT competencies.

*Subject-specified approach :* Here ICT is embedded into one's own subject area. By this method teachers not only expose students to new and innovative ways of learning, but also provide them with a practical understanding of what learning and teaching with ICT looks and feels like. In this way, ICT is not an 'add on', but an integral tool that is accessed by teachers and students across a wide range of the curricula (Kour, 2011).

*Practice-driven approach :* Here the emphasis is on providing exposure to use of ICT in practical aspects of teacher-training also. Emphasizing on developing lessons, assignments etc. using ICT and implementing these in their practical work experience at various levels, the students are provided with an opportunity to assess the facilities available at workplace and effectively use their own skills to manipulate these facilities. Based on the concept that the pre-service teacher is a learner, manager, designer and researcher, he is expected to research their practicum school's ICT facilities, design ICT activities with their tutor-teacher, manage those activities in the classroom, and evaluate their, effectiveness in terms of student learning.

Ideally, an integrated approach is to be followed for developing ICT skills in teaching (Kour, 2011). Whatever may be the approach followed in the institutions to develop knowledge about ICT, it has its own limitations and coupled with other reasons, they are not making student-teachers fully confident of using ICT in their day-to-day classrooms and other situations.

**Reforming Teacher Education Programmes for Enhancing Professionalism**

Owing to a variety of reasons, allegations are often made against the practitioners of the teaching profession that they are yet to achieve professionalism in true sense. It is felt that there is a need for the members of the teaching profession to be as professional as those pursuing other professions such as law, medicine, nursing, etc. However, instead of shifting the entire blame on the teachers for inadequate professionalism, the causes need to be probed. One of the reasons cited is related to the pre service education provided to the teachers. Questions are raised as to the nature and quality of pre service teacher training programmes and it is being felt that even after attending these programmes, the teachers are not fully prepared for the modern ICT based teaching-learning system while children are today rapidly learning to use the latest technologies (Bose, 2010). The teacher education programmes are yet to take concrete steps in this direction.

There is also the need to redefine the pedagogic skills in the context of emerging ICT based education. Activities comprising teaching and learning are changing. For instance, while preparing a lesson plan a teacher still has the mental setup that it would be used for the lecture s/he is going to deliver. Accordingly the content with the questions to be asked, the chalkboard work, teaching aids to be used are considered. But learning centered education with integration of technology, demand a different type of planning. Also new set of skills is required to assess the individualized, independent and technology

based learning. Again, skills required for maintaining, updating and sharing records, preparing and using data bases through ICT, need to be practiced in the perspective of ICT based education system. Hence, professionalism in teachers can be enhanced by preparing them for the present day requirements in the following ways :

**Reforming the Curriculum :** The realization of the potential of ICT for furthering the goals of education, its widening accessibility and its much needed integration in the educational process in the schools around the world are having a profound influence on all aspects of education (Bose, 2010). Professional development to incorporate ICTs into teaching and learning is an ongoing process. Teacher education curriculum needs to update this knowledge and skills as the school curriculum change. The aim of teacher training in this regard can be either teacher education in ICTs or teacher education through ICTs (Swamy, 2012).

## Adopting Learning centered Approach

Although it is strongly advocated to adopt learning centered approach in the educational institutions so that the learners are responsible, independent and active in their pursuit of knowledge, yet those who are to implement it and design such learning environments are themselves not trained in this way during their training programmes. If the teachers are to design learning environments that transform traditional paradigm to one in which students construct knowledge, creatively using digital technologies then it has to be assumed that learning is a natural process, unique for every individual, involves engagement of the learners with integration and contextualization and is a social process requiring collaboration with peers, teachers, parents and others (http://unesdoc.unesco.org/images/0102/00 1295/129533e.Pdf). Therefore, the first and foremost requirement for teachers to creatively use ICT is that the approach adopted in the teacher education institutions towards teaching-learning process needs to be based on similar assumptions."

## Learning to use Technology

The next important requirement is that the teachers are trained to use technology. It is well known that Computer literacy and ability to surf the Internet are the prerequisites for future complex activities such as development of online courses, teaching through multimedia approach, etc. Today for teachers it is becoming essential to be well versed in using desktop technologies for word procession, computing, making presentations, etc. Learning to efficiently use the Internet will also make teachers life long learners, much needed for the emerging knowledge driven societies.

## Using Technology for Collaborative Learning

Teachers have to understand that learning cannot be confined within the four walls of the classroom. The learner is not a passive recipient but an active collaborator interacting with the tutors and peers during the learning process (Dowling, 2003). Neither the teacher nor the textbooks are the only sources of information. Learning involves interaction with peers, teachers and also with those from the outside world.

ICT can be put to use for sharing information and exchanging views that help learning. If the teachers are provided with the opportunity for such collaborative learning during their training period whereby they can interact and share information with those within the classroom and those outside, they can realize that learning is a social process and that interaction and collecting information from different sources enrich the process.

## Using and Preparing Softwares as Instructional Materials

Today a variety of Softwares are available. Locating them and selecting the appropriate ones for instructional purposes is important. Also the teachers themselves must be able to produce some of the softwares. Training to prepare instructional packages for learning, drill, problem solving, games, simulations, preparing scripts, etc, is required.

## Awareness about Ethical Issues

The teachers need to be aware of the ethics that are associated with the use of digital technology especially the Internet. Respect for rules governing access and use of information, copyright laws, etc. have to be developed during the training period.

## Conclusion

The teacher education programmes to a major extent have the onus for ensuring the professionalism of teachers. As has been rightly mentioned by Childs (1989) every teacher is responsible for mastering those technology skills that will allow effective professional performance. Preparation for ICT based educational system will enable teachers to understand their role of being managers of learning rather than the possessor and dispenser of all information. The teachers no longer are supposed to feed the students with information but are to introduce them to the appropriate sources of information after duly evaluating the source for its pedagogical strength and other relevant issues. For this it is not enough to master the skills of using ICT but more important is effectively integrating it into the curriculum. The present day teacher education programmes treat ICT as a part of the theoretical component about which the trainees are supposed to learn.

Unless the teacher education programmes themselves integrate ICT into the curriculum, the teachers of the future may know about ICT but not about integration of ICT into the curriculum they would be dealing with. This requires that the teacher education programme be reformed so that teachers are ready to harness the pedagogic potential of ICT in creating learning centered education.

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