

Integration of ICT in Teacher Education

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ABSTRACT: Globalization and advancement in technology are driving changes in the social, technological, economical, environmental and political landscapes at such a pace and magnitude that is too great and too multiple to ignore. Teachers are expected to facilitate learning and making it useful and meaningful to the individual learner by providing knowledge and skills. Innovative technologies are providing teachers with new possibilities but at the same time placing more demands on teachers to learn how to use these technologies in their teachings and prepare students with the knowledge and skills they need in the 21st century. ICT has great potential for enhancing teaching and learning outcomes. This would in turn depend on the kind of training that the teacher has undergone. ICT teacher training should therefore be considered as continuing process, with the need of continuing support.

KEYWORDS: Globalization, technology, Innovative, ICT (information and communication technology).

INTRODUCTION

The world of technology is expanding at a mind boggling speed and encompassing almost every walk of life. The countries which are completely assimilating the advanced information technology in their education, commerce, defense, economics and social systems are emerging as dominant players in this world. Globally, the educational systems are under great pressure to adopt innovative methodologies and to integrate new "Information and Communication Technologies" in teaching and learning. The adoption of ICT is no longer a means for sustaining competitive advantage but an essential weapon for the survival of any institution. ICT integration in institutions is perceived as a necessity and if the educational institutions want their students to leave the institution as confident individuals capable of using technologies creatively and productively, they have to promote NCIT's in their educational process.

TRENDS

The first ICT trends used in educational system include, videos shown on televisions, text downloaded from the internet and animation and graphical presentations with tools as Microsoft PowerPoint. Modern ICT trends in education include distance learning open source, social networking, mobile learning etc. Thus the future educational system will no longer be regarded as classroom and book bound but rather as interactive and fun through technology. The latest technology trend worldwide is virtual education. Developing countries like India, China, Thailand etc are also following this trend but with very few institutions which are providing complete environment for virtual education. There are many institutions which are providing a complementary or a supplementary environment.

EDUSAT

The Indian satellite for education is a path breaking effort in the concept of telecommunication in India. Satellites are establishing the connectivity between urban educational institutions with adequate infrastructure imparting quality

education to a large number of rural and semi-urban educational institutions that lack the necessary infrastructure and faculty.

AIMS AND OBJECTIVES OF ICT IMPLEMENTATION IN EDUCATION

- To implement the principle of lifelong learning.
- To promote equal opportunity to obtain education and information
- To develop a system of collecting and disseminating educational information.
- To promote technology literacy of all citizens, especially for students.
- To promote quality distance education.
- To promote culture of learning at school.
- To support schools in sharing experience and information with others.

TECHNOLOGY RICH STUDENT-CENTERED CLASSROOM VERSUS CONVENTIONAL CLASSROOM

Technology is generating student-centered, learning-based classrooms where students do not consume and retain the facts and figures diffused by their teachers but they also get opportunity to ask questions via e-mails or discussion forums and join other students in understanding the course content. The teacher acts as a facilitator and resource person just as a catalyst and helps students to promote their individual learning. Students can access lectures, demonstrations on demand via internet, can ask or receive answers to their questions. They can learn at their own pace without feeling the pressure to keep up with other students. Using computer programs and multimedia programs a single teacher can exercise many more resources and methods within one classroom.

There are many changes observed in technology rich student-centered classroom from traditional classroom:

- Coaching occurs rather than lecture.
- There is a shift from whole class to small group instructions.
- Students are more actively engaged.
- Collaboration is fostered (when they work on limited number of computers in small groups and help each other) and competition is lessened.
- Students develop higher order thinking skills and are able to handle more complex assignments.
- Students have wealth of knowledge open to them.
- There is an integration of both visual and verbal thinking instead of the privacy of verbal thinking.

New information and communication technologies have brought many new challenges and opportunities for the educational system and the educators and they need to come to terms with these new challenges and take full advantage of the opportunities. For this the teachers should have the competence to integrate the emerging technologies and digital content with all their operations. It is of immense importance for today's teacher to have the knowledge of successful integration of ICT into his/her subject area to make learning successful. Exposure to ICT during the pre-service has gained much importance as it can help in increasing the willingness to integrate technology for classroom teaching.

TRAINING PROGRAMS

Institutions around the world are stepping towards providing ICT literacy to teacher-trainees by integrating ICT in teacher training programs. The following are the four primary approaches.

1. **DEVELOPMENT OF ICT SKILLS:** To develop ICT skills the pupil-teachers are given knowledge of ICT in general. They are made skillful in using ICT in their day to day life. They are provided with knowledge about various software, hardware and their use in their profession.
2. **STUDY OF METHODS AND ACTIVITIES OF TEACHING THROUGH ICT:** ICT aided teaching approach emphasizes on integration of ICT skills in respective subjects. Teachers design lessons and activities that centre on the use of ICT tools that will foster the attainment of learning outcomes. The teachers who have gone through such type of training at pre-service level are more confident and more understanding concerning the implementation of technology.
3. **SUBJECT-SPECIFIED APPROACH:** Under subject specified approach student-teachers learn to use their ICT skills in their subject area. Teachers are not only exposed to new and innovative ways of learning but also provided with a practical understanding as to how teaching and learning with ICT is different from its conventional counterpart.

4. **PRACTICE DRIVEN APPROACH:** In this approach the students are exposed to practical work-places. They are expected to design their lessons and assignments etc using ICT tools and implementing and managing these according to ICT facilities provided at their work place.

ICT COMPETENCIES IN TEACHER-TRAINERS

For the successful implementation of ICT in teacher-education, the teacher training curriculum implies the competencies for teachers, which are as follows:

- **Positive attitude towards ICT:** teacher should act as a role model for pre-service trainees and in-service teachers. He should encourage technology integration among the trainees.
- **Understanding of the educational potential of ICT:** The teacher should be an active and competent user of telecommunication services and internet as an instruction and teachers to use digital resources to get answers to their questions.
- **Ability to use ICT effectively in the Curriculum:** The teacher should help the institution in the implementation of technology plans of the institution and should plan, design and demonstrate the use of multimedia applications for instructional use.
- **Ability to manage ICT in classroom:** The teacher should be able to handle hardware and software and should have in-depth knowledge of instructional theories so that he can appropriately apply ICT into his/her classroom teaching.
- **Ability to evaluate ICT use:** The teacher should be able to evaluate ICT use in terms of student learning.
- **Technical Capabilities:** Training teachers to benefit from ICT's is essential for effective integration of ICTs in teaching. Not many teachers, including those who are using ICT, have a comprehensive knowledge of the wide range of its tools and resources. Therefore extensive on-going exposure to ICT for selecting the appropriate tools for their specific purpose is essential to enhance the effectiveness of teaching-learning.

Teacher inexperience and skill deficiencies are often important factors in creating barriers in communicating and disseminating content, because, at times, there is a great disconnect between student knowledge and use of ICTs and the knowledge and abilities of the teacher using them.

BENEFITS OF ICT-INTEGRATION ON TEACHER TRAINERS AND STUDENT TEACHERS

- They become self learners.
- They are exposed to a world of knowledge and so get updated.
- Problem-based learning skills are developed.
- It enables sustainable professional development.
- It enables the diffusion of knowledge to large masses.
- It develops higher order of thinking skills.
- It gives a feeling of empowerment to them (as they are aware of recent methodologies)

CONCLUSION

I conclude by saying that reliance on technology may go beyond expectations, but no technology can ever replace a teacher from its classroom. Role of teacher has changed from knowledge disseminator to instructor or facilitator, classroom environment has changed from teacher-centered, lecture-based to student-centered, learner-based but teacher was, is and will remain a pivot on which the educational system revolves.

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