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ORIGINAL ARTICLE

'ICTs' IN TEACHER EDUCATION

Girdhar lal Sharma

Research Scholar
CMJ UNIVERSITY, SHILONG (MEGHALYA)
EMAIL:girdharsharma07@gmail.com

Abstract:
Education in the Indian region faces a number of problems. These problems include the shortage of qualified teachers, very large student populations, high drop-out rates of students and teachers, and weak curriculum. All of these negative aspects result in poor delivery of education. The education crisis is worsened by the devastating effects of the HIV/AIDS pandemic, increasing poverty, a brain drain in the teaching community, budgetary constraints, poor communication, and inadequate infrastructure.
While societies in the region undergo rapid changes as a result of increased access to information, the majority of the school-going youth continue to undergo traditional rote learning. ICTs are one of the major contemporary factors shaping the global economy and producing rapid changes in society. They have fundamentally changed the way people learn, communicate, and do business.

They can transform the nature of education – where and how learning takes place and the roles of students and teachers in the learning process.

The professional development of teacher educators in the area of ICT integration is essential. Unless teacher educators model effective use of technology in their own classes, it will not be possible to prepare a new generation of teachers who effectively use the new tools for teaching and learning.

INTRODUCTION

We live in modern era, era of technology, science and media. In recent years, we have noticed the media aspect of instructional planning and design. As Dr. A.P.J. Abdul Kalam has said about the role of teachers that, "If a country is to be corruption free and become a nation of beautiful minds, I strongly feel there are three key societal members who can make a difference. They are the father, the mother and the teacher."

So the training we provide to in-service and pre-service teachers should be effective and fruitful for them. We must equip them with recent knowledge, skills and attitude by using appropriate educational media when we train them. Media combinations are generally referred to as multimedia system. The term 'multimedia instructional system' refers to the uses of appropriate and carefully selected varieties of learning experiences which are presented to the learners or trainees through selected instructional and training strategies which reinforce and strengthen one another so that the trainees or learners will acquire desired behavioral objectives. It is high time for teacher education to employ more varied and effective

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teaching-learning strategies, supported by advanced electronic communication technologies, which have revolutionized the very style of information accessing & processing for a very rapid knowledge explosion. In this context information and communication technologies (ICTs) have the potential to enhance access, quality, and effectiveness in education in general and to enable the development of more and better teachers. As computer hardware becomes available to an increasing number of schools, more attention needs to be given to the capacity building of the key transformers in this process, namely, teachers.

ICT AND TEACHER EDUCATION

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Education in the Indian region faces a number of problems. These problems include the shortage of qualified teachers, very large student populations, high drop-out rates of students and teachers, and weak curriculum. All of these negative aspects result in poor delivery of education. The education crisis is worsened by the devastating effects of the HIV/AIDS pandemic, increasing poverty, a brain drain in the teaching community, budgetary constraints, poor communication, and inadequate infrastructure.

While societies in the region undergo rapid changes as a result of increased access to information, the majority of the school-going youth continue to undergo traditional rote learning. Very little is done to take advantage of the wealth of information available on the Internet. Whereas the processing of information to build knowledge is one of the essential literacy skills vital for the workforce in the 21st century, it is often overlooked in current educational practices.

In order to function in the new world economy, students and their teachers have to learn to navigate large amounts of information, to analyze and make decisions, and to master new knowledge and to accomplish complex tasks collaboratively. Overloaded with information, one key outcome of any learning experience should be for learners to critically challenge the material collected in order to decide whether it can be considered useful input in any educational activity. This is the basis for the construction of knowledge. The use of ICTs as part of the learning process can be subdivided into three different forms: as object, aspect, or medium (Plomp, ten Brummelhuis, & Pelgrum, 1997).

•As object, one refers to learning about ICTs as specific courses such as 'computer education.' Learners familiarize themselves with hardware and software including packages such as Microsoft Word, Microsoft Excel, and others. The aim is computer literacy.
• As aspect, one refers to applications of ICTs in education similar to what obtains in industry. The use of ICTs in education, such as in computer-aided design and computer-aided manufacturing, are examples.
• ICTs are considered as a medium whenever they are used to support teaching and learning. The use of ICT as a medium is rare in India, where the availability of resources is a major obstacle to the widespread integration of ICTs in education.

Technology is not new to education. However, contemporary computer technologies, such as the Internet, allow new types of teaching and learning experiences to flourish. Many new technologies are interactive, making it easier to create environments in which students can learn by doing, receive feedback, and continually refine their understanding and build new knowledge. Access to the Internet gives unprecedented opportunities in terms of the availability of research material and information in general. This availability of research material and information happens to both inspire and threaten teachers.

Although, great progress has been made for use of ICTs in Indian education in recent years, large investments, improved infrastructure more equipment and software, all have provided Indian education with great potential to enhance and enrich the learning and teaching process, however, there remains much room for improvement in effective access to ICT for learning and no consistent pattern of use is emerging. The need is still for the confidence and competence to increase. Although fully effective, practice in the use of ICT is not yet the norm.

The computer equipment in the few fortunate schools that have them tends to be underused and lacks appropriate education content. Commonly, the computer equipment is used as objects in computer lessons. A few other subject teachers undertake courses in software packages but are unable to integrate or meaningfully insert this knowledge in their daily teaching work. A worrying tendency is that boys are the targets rather than girls when investments in ICT hardware and training are made (Kinyanjui, 2002). If not taken seriously, this will increase gender disparities in education in the sub-region.

In the education sector, curriculum review efforts are geared towards modernization, including the

incorporation of important ICT components. However, even the reviewed curriculum tend to treat ICT as a subject rather than as an application tool that can be used in all other subjects, in teaching and learning. Very recent discourse indicates that future curriculum reviews may consider a fully fledged ICT mainstreaming process.

Teacher education institutions and programs have the critical role to provide the necessary leadership in adapting pre-service and in-service teacher education to deal with the current demands of society and economy. It is an important catalyst for social transformation and national development. Teacher education institutions need to model the new pedagogies and tools for learning with the aim of enhancing the teaching-learning process. Moreover, teacher education institutions and programs must also give guidance in determining how the new technologies can best be used in the context of the culture, needs, and economic conditions of the country. They should create vision, a vision for technology integration in teacher education that develops teachers into 'technology integrationists' or teachers who thoughtfully choose to integrate technology when it supports students' subject matter learning. Four principles guide the design of technology learning experiences for teachers to increase the likelihood that they will become technology integrationists. The principles are: 1) connecting technology learning to professional knowledge; 2) privileging subject matter and pedagogical content connections; 3) using technology learning to challenge professional knowledge; and 4) teaching many technologies.

India today, is seen as the fastest growing economy and with its prowess in ICT has positioned itself as the most preferred outsourcing destination. However, if India has to sustain its growth and retain its competitive position, the educational demands of the 21st century need to be addressed with utmost seriousness. Therefore, India cannot afford to leg behind but must have a road map for deriving the benefits of the potential ICTs have for providing teacher education.

SOME POLICY SUGGESTIONS FOR EFFECTIVE ICT TEACHER EDUCATION

No technology can fix bad educational philosophy, policy or practice, nor can it compensate for a lack of political commitment. The decisions about what to use, how and when, are political and educational decisions that must be made consciously and daringly (UNESCO, 2004).

1. PROVIDE TRAINING PROGRAMS FOR TEACHERS

The provision of ICT access and an educationally sound ICT training program can only have the required impact if the public administration fully supports this major transformation. Respective governments need to look carefully into the necessary pre-requisites and consequences of ICT integration at the level of curriculum development, the examination system, and teacher incentives, among others. Efforts are needed to mainstream ICT appropriately in all subject curriculums. The examination systems should be modernized to support ICT rich curriculum.

As the first institutions are getting ready to offer comprehensive ICT teacher training based on educational principles and targeting subject teachers, the government could support the existing and upcoming professional development initiatives. A clear incentive package could make it attractive for teachers to undertake similar training.

2. MAKE ICT A PRIORITY

As Carlson (2002) indicates, success in ensuring that teachers acquire the skills and knowledge they need to use technology effectively opens the door to all kinds of new educational opportunities for both teachers and students, and downstream economic opportunities for graduating youth and their countries. This success is the key to participation in the global knowledge economy. Accordingly, teacher professional development in the use and application of technology must be given the priority and resources it deserves, while still maintaining a constructively critical eye on its costs and methodologies.

3. MODERNIZE TRAINING AND THE CURRICULUM

The fundamental aim is to give the learners the opportunity to become critical thinkers, problem solvers, information literate citizens, knowledge managers and, finally, team members who are proficient in collaborating with others. Meeting this aim requires a fundamental change in how teachers are trained and in curriculum development approaches.

4. MAINSTREAM ICTS IN ALL SUBJECTS

ICTs should be infused into the entire curriculum. Throughout their teacher education experience and professional development programs, pre- and in-service teachers should learn how to incorporate ICTs into their own subjects. Restricting technology experiences to a single course or a separate area of teacher education will not prepare students to be technology-using teachers. More attention is needed for this integration into the curriculum. The focus seems to be on the classic 'Maths, Science, English' package, giving the dangerously wrong impression that ICTs cannot be integrated in all other subjects. The integration itself tends to be focused on technology rather than on information and communication.

PROFESSIONAL DEVELOPMENT OF SUBJECT TEACHERS

Governments should offer ICT professional development services to subject teachers rather than concentrating on the hiring of ICT teachers only. The focus should not be solely on technology skills.

CONCLUSION

ICTs in education are not transformative on their own. Transformation requires teachers who can use technology to improve student learning. The professional development of teacher educators in the area of ICT integration is essential. Unless teacher educators model effective use of technology in their own classes, it will not be possible to prepare a new generation of teachers who effectively use the new tools for teaching and learning.

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