

ICT in Teacher Education: Heraldng A “Fresh Wave”

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ABSTRACT

Incorporation of ICT in regular teaching is the latest trend and is here to stay for years to come. In an era where the world of education and learning are changing rapidly, bringing new realities and challenges to Teacher Education Institutions (TEI's), through innovations in use of Information and Communication Technologies (ICT) has important implications. Today Teacher Education in India is being overhauled and redesigned to include the changes taking place across the world. New opportunities and possibilities especially those in electronic and other related applications for skill development outside formal learning arrangements stimulate the reform of the existing educational provisions.

KEYWORDS: technological, interaction, autonomy, assessment, communication

INTRODUCTION

Much has been deliberated in the context of new and latest reforms in teacher education. Incorporation of ICT in regular teaching is the latest trend and is here to stay for years to come. In an era where the world of education and learning are changing rapidly, bringing new realities and challenges to Teacher Education Institutions (TEI's), through innovations in use of Information and Communication Technologies (ICT) has important implications. Today Teacher Education in India is being overhauled and redesigned to include the changes taking place across the world. New opportunities and possibilities especially those in electronic and other related applications for skill development outside formal learning arrangements stimulate the reform of the existing educational provisions. The past decade has seen efforts made at different levels not merely to spread the use of computer and related technologies but also to integrate the same in the core functioning of institutions i.e. teaching-learning. In this direction, the GOI has initiated several programmes starting with the Computer Assisted Learning and Teaching (CALT) in late 1980's. Under this teacher educators were provided initial training in the use of computers. Other schemes include financial support to acquire hardware, setting up of computer labs and other resource supports. All these developments posed new questions on the regulatory capacities of the organizations, infrastructure development, the way teacher educators view learner and learning, available technology and ICTs and provisions of teaching and learning.

As Indian industry moves towards more professionally managed culture, the education sector too is growing by leaps and bounds. With the diversity in our educational set up and to meet the diverse needs of our rural populations scattered over a large geographical area in about 6,00,000 villages most of which are very small and remote we need to adopt curricula that suits the needs of different socio-cultural groups, and to maintain the national and social cohesion of the country. This can be achieved when we build the capacity to train large number of teachers and use Technology as an instrument to generate this change and

cater to the training requirements of teachers. IT enabled education and training would not only be cost effective but also make education effective and efficient while offering mass customization of learning, and continuous support.

TRANSFORMATIONAL VALUE OF ICTS: INDIAN EXPERIENCES

There is a large gap between the ICT culture expected and practiced. Sensing the deficiency of the lack of ICT educated human resources, the National Council for Teacher Education (NCTE) as a capacity building exercise in the first phase has started ICT literacy camps for teacher educators throughout India. The targeted TEI's in the first phase were covered in the 100 countrywide camps and hands on interactive experience was provided through a series of self-learning CDs developed by the NCTE. In this mode NCTE covered a large number of TEI's and could motivate the teacher educators to use computers in various activities. Other initiatives of the regulatory bodies include initiative of NCERT in conducting Computer Literacy Programmes under the CLASS project, organizing computer programmes for teachers from the vocational and technical education streams by the Indian Society for Technical Education (ISTE), organizing Management Information System series for Higher education teachers by the UGC, etc. Apart for these statutory and Government organizations, various corporate sectors like INTEL, WIPRO and Azim Premji foundation etc. are actively involved in technology enabled teacher development.

“The teacher education curricula in ICT have been shaped to a significant extent by the documentation of the NCERT. The NCERT has taken an initiative to make ICT literacy a compulsory one in pre-service course in Teacher Education. The major objective of this course is to enable the teacher trainees to effectively use ICT in teaching, learning, use multimedia for preparing lesson plans, document creation, communication and dissemination of information using electronic media, etc.” (Kishan, 65)

WHAT ICT BRINGS TO THE CLASSROOM

Many educationists are predicting that ICT will bring about several benefits to the learner and the teacher. These include sharing of resources and learning environments as well as the promotion of collaborative learning and a general move towards greater learner autonomy.

•**Shared learning resources.** One of the most striking examples of ICT in action in American schools is the use of video systems to transmit television programmes and information throughout an entire school and even between schools in the same district. Students and teachers enjoy the facility to share information wherever they are in the school. Television monitors provide details of timetables, projects and assessment, mealtime menus and a host of other useful up-to-the-minute information. There are also regular play-outs of short films and videos created by children, and some schools can use several channels for broadcast purposes.

•**Shared learning spaces.** Networked computing facilities create a distributed environment where learners can share work spaces, communicate with each other and their teachers in text form, and access a wide variety of resources from internal and external databases via web based systems through the Internet. Using these shared systems, pupils develop transferable skills such as literary construction, keyboard techniques and written communication skills, whilst simultaneously acquiring knowledge of other cultures, languages and traditions. Furthermore, children are able to make links between internal thinking and external social interaction via the keyboard, to improve their social and intellectual developments in the best constructivist tradition. Children are quickly mastering the ability to communicate effectively

using these new technologies because the experience has been made enjoyable in an unthreatening environment, and there are immediate perceived and actual benefits.

•**The promotion of collaborative learning.** Reasoning and intellectual development is embedded in the familiar social situations of everyday life so the social context of learning has a great deal of importance. Collaborative learning is therefore taking an increasing profile in the curricula of many schools, with ICT playing a central role. Schools in the UK are already starting to use discussion lists, and other forms of computer mediated communication (CMC) to promote collaboration in a variety of learning tasks and group projects.

•**The move towards autonomous learning.** At the same time, computers - and the power they bring to the student to access, manipulate, modify, store and retrieve information - will promote greater autonomy in learning. Inevitably, the use of ICT in the classroom will change the role of the learner, enabling children to exert more choice over how they approach study, requiring less direction from teachers. Students will be able to direct their own studies to a greater extent, with the teacher acting as a guide or moderator rather than as a director. This facilitation will take on many facets and will also radically change the nature of the role of the teacher as we currently understand it. Consider for example the students at a local Devon school who are able to use a software based music laboratory in their lunch hours to write, record and produce their own music CDs. Microphones and keyboards have been purchased to encourage the creativity the children are discovering within these self-driven extracurricular activities. Minimal teacher management is required. In the words of Moira Monteith,

“ICT use offers children another tool to use in exploring ideas and creating representations. where images of different kinds can be integrated with sounds and music then ICT transforms what children can achieve and allows them to create something not possible in any other way. Making images and music electronically offers a novel approach to learning that still allows children to create and evaluate their own products.” (Monteith, 2)

ENGINEERING THE NEW ROLE OF THE TEACHER

Teachers have been polarized in their acceptance of the new technologies. Whilst some have enthusiastically integrated computers, CMC and the Internet into the classroom, others have been cautious in their welcome, and some have simply rejected the technologies. There is a level of justifiable cynicism based on previous experience of computer based applications such as CAL. Ironically, some enthusiasts have inadvertently damaged the reputation of ICT by poor classroom practice - using the technology for the sake of its novelty value, or failing to think through the issues before implementing the technology.

With the inevitable proliferation of ICT in the classroom, the role of the teacher must change, and here are four key reasons why this must happen:

Firstly, the role of the teacher must change because ICT will cause certain teaching resources to become obsolete. For example, the use of overhead projectors and chalkboards may no longer be necessary if learners all have access to the same networked resource on which the teacher is presenting information. Furthermore, if students are distributed throughout several classrooms - which is becoming more common place - localized resources such as projectors and chalkboards become redundant and new electronic forms of distributed communication must be employed.

Secondly, ICT may also make some assessment methods redundant. Low level (factual) knowledge for example, has been traditionally tested by the use of multiple choice questions. In an ICT environment, on-line tests can easily be used which instantly provide the teacher with a wide range of information associated with the learner's score. Comparisons of previous

scores and dates of assessment for example, will indicate a child's progress, and each student can be allocated an individual action plan data base stored in electronic format into which each successive test's results can be entered automatically.

Thirdly, the role of the teacher must change in the sense that it is no longer sufficient for teachers merely to impart content knowledge. It will however, be crucial for teachers to encourage critical thinking skills, promote information literacy, and nurture collaborative working practices to prepare children for a new world in which no job is guaranteed for life, and where people switch careers several times. One of the most ubiquitous forms of ICT - the Internet - gives access to an exponentially growing storehouse of information sources, almost unlimited networks of people and computers, and unprecedented learning and research opportunities. The Internet is a network of networks, providing opportunities for inquiry-based learning where teachers and students are able to access some of the world's largest information archives. Students and teachers are able to connect with each other, learn flexibly, and collaborate with others around the world. Generally speaking, geographical distance is no longer a barrier, and the age of the 'borderless' provision of education is upon us. Teaching strategies and resources can be shared through communication with other educators and may be integrated across the curriculum. The Internet provides a wealth of information to the extent that it is now impossible to comprehensively track the amount of information available. Unfortunately, misinformation and inaccuracies are similarly present in great numbers on the Internet so one of the new roles of the teacher within the electronic classroom will be to separate out quality information from misinformation. Identification, classification and authentication of electronic information sources will be critical new tasks for teachers.

Finally, teachers must begin to reappraise the methods by which they meet pupils' learning needs and match curricula to the requirements of human thought. The Internet can be an excellent way to adapt information to meet the characteristics of human information processing. Traditional methods of imparting knowledge, such as lectures, books and this conference paper, are characterized by a linear progression of information. Human minds are more adaptable than this, using non-linear strategies for problem solving, representation and the storage and retrieval of information.

CONCLUSION

Rapid changes in technology will ensure that ICT will proliferate in the classroom. It is predicted that there will be many benefits for both the learner and the teacher, including the promotion of shared working space and resources, better access to information, the promotion of collaborative learning and radical new ways of teaching and learning. ICT will also require a modification of the role of the teacher, who in addition to classroom teaching will have other skills and responsibilities. Many will become specialists in the use of distributed learning techniques, the design and development of shared working spaces and resources, and virtual guides for students who use electronic media. Ultimately, the use of ICT will enhance the learning experiences for children, helping them to think and communicate creatively. ICT will also prepare our children for successful lives and careers in an increasingly technological world.

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