Integrating ICT in Teacher Education

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Abstract

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 teachers need to learn to teach with digital technologies, even though many of them have not been taught to do so. The aim of teacher training in this regard can be either teacher education in ICTs or teacher education through ICTs. A teacher's professional development is central to the overall change process in education. To assist future teachers it is necessary that education systems, the employers indicate to teacher education providers which models they would expect teachers to follow. Otherwise it is impossible to properly prepare new teachers and to offer professional development to existing teachers, when there is no systemic agreement on which ideas will be used at what levels.

Keywords

Use of ICT, ICT Tools, ICT for Inclusion and Distance Learning

I. Introduction

Training a teacher in using ICT is more crucial than acquiring a large number of computers. Teachers have to be trained to facilitate the learning process, make the process real, achievable, challenging, yet exciting and not intimidating. Reducing teacher talk and encouraging student discussion is extremely important. Everything need not be written on the blackboard to be considered as taught. Many teachers think the computer is used only to make the content look attractive! They need to know that in 21st century, information is not difficult access, instead organizing, sharing, and collaborating become essential skills. Hence, ICT is not merely to portray information but to interact, share, and thus learn. ICT provides meaningful, absorbing media that makes teaching-learning more productive. Unfortunately, in India, ICT is largely associated with the use of computer and Internet. What one uses ICT for and how one uses it, is not addressed sufficiently. Schools and colleges acquire computers, Internet connection, and LCD projectors and then send their teachers for crash courses that supposedly teach them to use technology. The trouble is this whole approach is devoid of focus. But, until teachers are made to realize the need of ICT, no amount of computerization can help. Capacity building of teachers will be the key to the widespread infusion of ICT enabled practices in the school system. A phased programme of capacity building will be planned. In service training of teachers will comprise of Induction Training as well as Refresher Courses. The induction trainings will be impacted by the Regional Institutes of Education of the NCERT, State Councils of Educational Research and Training (SCERTs) or such other institutions of the Central and State Governments and will preferably be completed before the commencement of the academic year. The refresher trainings will be carried out every year to enable teachers to share, learn and keep abreast of the latest trends in ICT based teaching learning processes. The induction training will be followed by teacher's evaluation to ensure that the minimum competency is achieved.

Way to assess the merit of ICT use in education is to consider what its use enables students and teachers to do that they would not otherwise be able to do.

To explore this question, we consider five aspects of the educational use of ICT –

- supporting new pedagogical methods
- accessing remote resources
- enabling collaboration
- extending educational programs and developing skills for the workplace

II. ICT Tools

There are various ICT tools available which can be utilized for the knowledge creation and dissemination in the modern world. Tools include Radio, T.V, Internet, Mobile phone, Computer, laptop, tablets and many other hardware and software applications. Certain ICT tools like laptops, PCs, mobile phones, have their own implication in Education. These devices can be used in imparting education and training for teachers and students. Many of the ICT tools are much hyped but have not given fruitful results till now.

III. Type of ICT Tools Available

Synchronous
- Skype
- Audio conferencing
- Video conferencing
- Google Hangout
- Messengers

Asynchronous
- Email
- Blogs
- Wikis
- News Groups
- RSS Feeds
- Discussion Forums
- Discussion Groups

Computing Tools
- Word Processing
- Spreadsheets
- Presentations
- Database management

Learning Management Systems
- Moodle
- Joomla
- Sakai
- Atutor
- Web Study
- Canvas

Knowledge databases
- Online Encyclopedia
- Online Libraries
- Online journals
- Online magazines
- Online documents/reports
- Cloud Storage
- Google Drive

- Drop Box
- Microsoft
- I-Cloud
- Just Cloud
- Live Drive
- Zip Cloud

Professional Networking

- Associations
- Professional Groups
- Communities of Practices (Cops)
- Professional Blogs
- Discussion Groups
- Forums
- Conferences

ICT Tools for Hands-on Practice

- ICT Tools for Teachers
- Audacity- audio content creation/editing
- Screen cast-o-matic –video content creation
- Window Movie Maker- Video editing tool
- Google Drive
- Documents
- Spreadsheet
- Presentation
- Forms
- Blogger
- Hot Spot- Quiz creation
- Google Hangout
- Qualitrics –Survey creation
- Doodle – Common Scheduler
- Join me
- Green shot
- All Video Converter
- Wiki spaces
- Moodle –Learning Management System
- YouTube
- Active Presenter
- Slide Share

IV. ICT For Children With Special Needs

Use of ICT will catalyze the cause and achieve the goals of inclusive education in schools.

- ICT software and tools to facilitate access to persons with disabilities, like screen readers; Braille printers, etc. will be part of the ICT infrastructure in all schools. Special care will be taken to ensure appropriate ICT access to students and teachers with special needs.
- All teachers will be sensitized to issues related to students with special needs and the potential of ICT to address them. All capacity building programmes will include components of ICT enabled inclusive education.
- All web based interfaces developed for the programme including digital repositories, management information systems, etc. will conform to international guidelines for accessibility.
- Accessibility norms will be adopted as per the World Wide Web consortium, W3C guidelines (Web Content Accessibility guidelines, http://www.w3.org) to enable the content to be accessed by children with special needs. Web based digital repositories with W3C compliance will address the lack of availability of resources for persons with disabilities. Digital content and resources, for the exclusive use of persons with disabilities, talking books for example, will also be developed

and deployed. The absence of appropriate vocabulary for different subject areas in the different Indian languages and the unfamiliarity of the cultural context can make digital communication and resources inaccessible to students and teachers across the country. Efforts will be initiated to develop appropriate word lists and dictionaries in Indian languages and wide spread translations encouraged.

V. ICT For Open and Distance Learning

Open and Distance Learning with the use of ICT opens out alternate possibilities for students who have dropped out, cannot continue formal education or are students of the non-formal system of education. Existing formal systems of Education will be strengthened with ICT based instruction available in Open and Distance Learning Systems so as to cater to the needs of such learners. Present Open Schooling systems (e.g. National or State level Open Schools) will be strengthened by harnessing ICTs innovatively. Access to e-books, digital learning resources, Digital Repositories (with relevant learning resources) etc. will be developed by these institutions as student support services. This will also be used for online capacity building for open and distance teacher training. All Open and Distance Learning Systems will be automated and provide online, all services including admissions, examinations, e-Accreditation and grievance redressal on the lines of the National Institute of Open Schooling. The proposed mentoring system for students involving expert teachers will be extended to these students also. Online courses, online on demand exams, and digital repositories and content, media broadcasts planned through DTH/Satellite based, open learning systems allowing multiple entry and exit points, opening out the school resources to non-formal students, guidance and counseling, will result in effective use of ICT for open and distance learning.

Let us quote eight of those new challenges for teachers:

1. Teachers have to take into account the digital native generation. They have to understand the new characteristics of the 'generation Y', to be aware of their new abilities, and to respect their new relationship to knowledge.
2. Teachers have to take into account the new forms of knowledge and competences, and the missions of schools. They must be aware that knowledge is not only a list of items in a curriculum: it has complex and transverse components. They must have the knowledge to address the main questions of the next century. They must be aware of the core missions of schools in the society and of the values school has to transmit.
3. Teachers must work in networks, take part in networks, and consider that their role is to develop human networks for learning. Being part of a network, being able to behave in a network, to take benefit from networking demand teachers themselves experience such networked activities.
4. Teachers must work in the framework of collective intelligence and prepare pupils for collective intelligence. This means that teachers themselves must act collectively, take part in collective missions, experience collective learning and collective intelligence develop collaborative activities. Schools now need 'collectively intelligent teachers'.
5. Teachers have to be 'e-teachers'. This means not only to be able to use digital technologies, tools and resources, but also to change the pedagogy, to integrate ICT as technologies and, more important, as tools for pedagogical enrichment.
6. Teachers have to be 'blended teachers', mixing digital activities and non digital ones, mixing presence and distance,

dealing with t me and space and all the possibilities offered by ICT in the management of time and space (distance and presence, synchronic and non-synchronic).

7. Teachers have to be 'LLL-teachers'. This means that they have to prepare their pupils for lifelong learning, mainly by making them learning how to learn, making them able to learn all their life long. This implies that teachers themselves are involved in lifelong learning. Teachers have to be lifelong learners.

8. Teachers have to be actors of the changing school in a learning society. They cannot just wait for the reforms elaborated by policy makers! They must contribute to decision making, they must be aware of their political role in the educational policy.

VI. 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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