ENHANCING THE QUALITY OF EDUCATION THROUGH ICT

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Abstract— Information and communication Technologies (ICTs) are a major factor in shaping the new global economy and producing rapid changes in society. In the present day there is a conscious shift towards approaches that lead to constructivist learning recognizing the use of information technologies. The role of teacher educator/teacher has changed and continues to change from being an instructor to a facilitator and creator of a learning situation. This leads to a challenging task among the teacher educators as they need training not only in computer literacy but also in the pedagogical application of those skills to improve teaching and learning for successful integration of ICTs into teacher education. The paper looks into the challenges and issues faced by teacher educators in the fullest utilization of information and communication technology. It focuses on the professional development of teacher educators in various contexts of infusing technology into the educational system. The paper closes with a suggestion for a planned strategy which gives priority to capacity building of teacher educators ensuring the appropriate, effective and sustainable integration of ICTs that empowers them not just to prepare well trained teachers to implement but also to lead educational innovations that will transform schools and ultimately, all of society.

Index Terms— Information and Communication Technologies (ICTs), Constructivist Learning, Teacher Educator

I. INTRODUCTION

Education has a great role for a country. It is the grass root level for any country. Any type of failure in this stage may become a country backward. It is considered only two or three goals in this level of education. Among them Universal Primary Education and Gender Equality are main. Government of India has taken many programmes and schemes for Universalizing the Primary and Elementary Education. In modern society ICT plays a remarkable role in School Education. ICT in schools provide lots of opportunities to teachers to transform their practices by providing the learners with improved educational content and more effective teaching and learning methods. ICT improves the learning process through the provision of more interactive educational materials that increase learner's motivation and facilitate the easy acquisition of basic skills. In Primary and Secondary level the use of various multimedia devices such as computer application, OHP, videos, television e. t. c. offer more challenging and engaging learning environment for students. In twenty first century teaching learning skills underscore the need to shift from traditional teacher centered pedagogy to more learner centered method. Active collaborative and cooperative learning environment facilitated by ICT and its gadgets. Not only teaching learning system but also administrative system can be improved by the use of ICT.

II. What is ICT?

ICT is an acronym that stands for • Information • Communication • Technology. Information- The nature of information (the ''I'' in ICT) covers topics such as the meaning and value of information; how information is controlled; the limitations of ICT; legal consideration. Management of information covers how data is captured, verified and stored for effective use; the manipulation processing and distribution of information; keeping information secure; designing networks to share information. Communication- The C part of ICT refers to the communication of data by electronic means, usually over a distance. This is often achieved via networks of sending and receiving equipment, wires and satellite software applications and data. The type of network is invaluable in the office environment where colleagues need to have access to common data or program.

External Networks- Often you need to communicate with someone outside your internal network; in this case you will need to be part of a Wide Area Network (WAN). The internet is the ultimate WAN – it is a vast network of networks.

Internal Networks- Usually referred to as a Local Area Network (LAN), this involves linking a number of hardware items together within an office or building. The aim of a LAN is to be able to share hardware facilities such

as printers or scanners Technology-Technology is the making, modification, usage, and knowledge of tools, machines, techniques, crafts, systems, and methods of organization, in order to solve a problem, improve a pre-existing solution to a problem, achieve a goal, handle an applied input/output relation or perform a specific function. It can also

ICT Training Inputs for Teachers and Teacher-Educators Teacher educators, because they have to work in multiple contexts-both the home institution and the field where students are placed to observe and practice teaching-may also be more influenced by the absence of the essential conditions for ICTs in teacher education. Four stages are common, but they may be repeated with new forms of ICTs or applications of ICTs to new areas. The first stage for each individual is awareness, and the appropriate response at this stage is to provide information about a relevant application of ICTs and appropriate ways that it may be used in the individual's current professional or personal concerns. Please note the learner-centred nature of this approach; the concerns are not those of the supporter (the ICT expert) or the organization, but of the individual teacher educator. Teacher educators then explore the use of the application. They need support to put this ICT application into practice in a timely manner and to reflect on its effectiveness. Only after teacher educators have gone through these stages are they able to adapt their practice to make better use of ICTs, and then move toward the final stage to become innovators and modelers of excellent practice for their students and colleagues (UNESCO, 2002). For the successful implementation of ICT, teacher trainees, teachers and teacher- educators need to be trained in the following dimensions.

1. Awareness phase: The input should be to make the teachers aware of the importance and possibilities of ICT- the current trends and future projections.

2. Learning theories and technology integration: Traditional and modern view of learning, shift from teaching to learning, constructivism, role of ICTs in lifelong learning.

3. Basic hardware skills : Hands on experiences in operating a) the PC and laptops-switching on, shutting down, and networking, b) storage devices- using floppy drive, CD ROM drive, flash drive, and burning CD-ROM , c) output devices-using printers and speakers, d) input devices using keyboard (Including shortcuts), mouse, modem, scanners, web cam, digital camera, camcorders, date loggers and d) display devices- data projectors, and interactive white boards.

4. Understanding system software: Features of desktop, starting an application, resizing windows, organizing files (Creating, editing, saving and renaming), switching between programs, copying etc.

5. Using application/productivity software: Word processing, spreadsheet, database, presentation, publishing, creation of Portable Document Format (PDF) files, test generation, data logging, image processing etc.

6. Using multimedia: Exposure to multimedia CD ROMs in different subject, installing programs, evaluating CD ROMs, approaches to using CD ROMs, creating multimedia presentations.

7. Using internet: e-mail, communities, forums, blogging , wiki: subscription to mailing lists, email and internet projects, web searching strategies (navigating, searching, selecting, and saving information) videoconferencing, designing web pages, freeware and shareware, evaluating website resources, virtual fieldtrips, learning opportunities using the web, and netiquette.

8. Pedagogical application of ICT tools: Specific use of application software in different subject, appropriate ICT tools and pedagogy, unit plan integrating ICT tools, approaches to managing ICT-based learning groups, assessment of learning, electronic portfolio and assessment rubrics, creating teacher and student support materials, supporting students with special needs.

9. Introduction to open source software: Concept, types, advantages, working on open sources application software.

10. Social, legal, ethical and health issues: Advantages and limitations of computer use, privacy violations, copyright infringement, plagiarism, computer security (hacking, virus, misuse, abuse and staying safe) healthy use (seating, light, sound, radiation, exercise)

The teacher educators could adopt initiatives like:

1. Self-learning using the tutorials available on the net or print medium.

2. Hiring an ICT expert by a group of teachers/teacher educators.

3. Enrolling for online professionally development courses.

4. Enrolling for the best commercially available ICT training programs. 5. Coaching by a colleague-Mentoring. 6. Attending ICT training courses, seminars, conferences and workshops.

7. Communities of teachers' collaborative groups to integrate ICT into their curriculum (same subjects, different subjects, same school/college, different school/college)

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8. Online learning by means of videoconferencing, discussion forum, chat, blogging etc.

ICT can be used as a tool in the process of education in the following ways:

Informative tool: It provides vast amount of data in various formats such as audio, video, documents.

Situating tool: It creates situations, which the student experiences in real life. Thus, simulation and virtual reality is possible.

Constructive tool: To manipulate the data and generate analysis.

Communicative tool: It can be used to remove communication barriers such as that of space and time.

The following mediums are used for the delivery and for conducting the education process: Voice – Instructional audio tools that include interactive technologies as well as the passive ones. Video - Instructional video tools that include still images, prerecorded moving images, and real-time moving images combined with audio conferencing.

Print – instructional print formats that include textbooks, study guides, workbooks and case studies.

E learning has the following advantages:

Eliminating time barriers in education for learners as well as teachers (Sanyal, 2001; Mooij,2007; Cross and Adam, 2007; UNESCO, 2002; Bhattacharya and Sharma, 2007); Eliminating geographical barriers as learners can log on from any place (Sanyal, 2001; Mooij, 2007; Cross and Adam, 2007; UNESCO, 2002; Bhattacharya and Sharma, 2007);

Asynchronous interaction is made possible leading to thoughtful and creative interaction(Sanyal, 2001; UNESCO, 2002; Bhattacharya and Sharma, 2007);

Enhanced group collaboration made possible via

New educational approaches can be used. (Sanyal, 2001); It can provide speedy dissemination of education to target disadvantaged groups (UNESCO, 2002; Chandra and Patkar, 2007);

It offers the combination of education while balancing family and work life (UNESCO, 2002; Bhattacharya and Sharma, 2007);

It enhances the international dimension of educational services (UNESCO, 2002);

It allows for just in time and just enough education for employees in organizations (UNESCO, 2002).

It can also be used for non-formal education like health campaigns and literacy campaigns (UNESCO, 2002).

Technology has affected societies, technology has helped develop more advanced today's global economy technological processes produce unwanted by deplete natural resources, to the detriment of Earth's implementations of technology influence the often raises new ethical questions. Present School Education System in India future education of a country. There are various schools in India and many new ones are also coming up. Different types of schools like residential schools, boarding schools, government schools, day schools, primary schools and secondary schools operate in the country. Most of the schools these days have world class facilities including the best teachers to provide quality education to children. There are so many schools that are running in the country, but parents still find it difficult to choose schools for their children due to the huge numbers. All the schools in the country are governed by the rules of the respective boards under which they run.

Benefits of ICT in education to the main stakeholders.

Stakeholder Benefits

Students

➢ Increased access,

➢ Flexibility of content and delivery,

➢ Combination of work and education,

➢ Learner-centred approach,

➢ Higher quality of education and new ways of interaction.

➢ High quality, cost effective professional development in the workplace,

Employers

➢ Upgrading of employee skills, increased productivity,

➢ Development of a new learning culture,

➢ Sharing of costs and of training time with the employees,

➢ Increased portability of training.

➢ Increase the capacity and cost effectiveness of education and

Governments

• training systems, To reach target groups with limited access to conventional

• education and training, To support and enhance the quality and relevance of existing

• educational structures, To ensure the connection of educational institutions and curricula

• to the emerging networks and information resources, To promote innovation and opportunities for lifelong learning.

III. POTENTIAL DRAWBACKS OF USING ICT IN EDUCATION

Although ICT offers a whole lot of benefits there are some risks of using ICT in education which have to be mitigated through proper mechanisms.

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They are:

1. It may create a digital divide within class as students who are more familiar with ICT will reap more benefits and learn faster than those who are not as technology savvy.

2. It may shift the attention from the primary goal of the learning process to developing ICT skills, which is the secondary goal.

3. It can affect the bonding process between the teacher and the student as ICT becomes a communication tool rather than face to face conversation and thus the transactional distance is increased.

4. Also since not all teachers are experts with ICT they may be lax in updating the course content online which can slow down the learning among students.

5. The potential of plagiarism is high as student can copy information rather than learning and developing their own skills.

6. There is a need for training all stakeholders in ICT.

7. The cost of hardware and software can be very high.

IV. CONCLUSION

Changes in the curriculum do support fundamental economic and social transformation in the society. Such transformations require new kinds of skills, capabilities and attitudes, which can be developed by integrating ICT in education. The overall literature suggests that successful ICT integration depends on many factors. National policies as well as school policies and actions taken have a deep impact on the same. Similarly, there needs to be an ICT plan, support and training to all the stakeholders involved in the integration. There needs to be shared vision among the various stakeholders and a collaborative approach should be adopted. Care should be taken to influence the attitudes and beliefs of all the stakeholders. ICT can affect the delivery of education and enable wider access to the same. In addition, it will increase flexibility so that learners can access the education regardless of time and geographical barriers. It can influence the way students are taught and how they learn. It would enable development of collaborative skills as well as knowledge creation skills. This in turn would better prepare the learners for lifelong learning as well as to join the industry. It can improve the quality of learning and thus contribute to the economy. Similarly wider availability of best practices and best course material in education, which can be shared by means of ICT, can foster better teaching. However there exist some risks and drawbacks with introducing ICT in education which have to be mitigated. Successful implementation of ICT to lead change is more about influencing and empowering teachers and supporting them in their engagement with students in learning rather than acquiring computer skills and obtaining software and equipment. Also proper controls and licensing should be ensured so that accountability, quality assurance, accreditation and consumer protection are taken care of. ICT enabled education will ultimately lead to the democratization of education.

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