

# Using ICT in Empowering Teachers for Quality Education

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## Abstract

The quality education depends upon the quality of teachers. Teacher education plays a vital role in developing quality education which is the present requirement in the modern information & communication era. Teachers educators are the basis producing the future teachers who are the pillars of nations. The quality of teacher education programmes depend on the quality of teacher educators who are the teachers of teachers. They should be well equipped with the latest knowledge's in their subject by undergoing orientation & refresher courses, seminar etc., management skills, communication skills, good qualities to inculcate among the teachers trainees. Teachers educators should be a friend, philosopher and guide to teachers trainees and be a role model to the teacher trainees. A teacher with technology is the need of the hour. The techno-teacher is one who integrates the content with technology in the classroom. The teacher has to use the simple technology to higher technology that is black board to space-board. The Information Communication Technology (ICT) heralds the world of knowledge on the screen hence the learners learning will be enhanced in a split of second meeting the demands of the society at large.

Education is the backbone of a nation. The introduction of ICTs in the education has profound implications for the whole education process especially in dealing with key issues of access, equity, management, efficiency, pedagogy and quality.

Information and communication technology (ICT) is a force that has changed many aspects of the way we live.<sup>121</sup>In developing countries, education is also linked to a whole batch of indicators of human development. Education of women influences the health of children and family size. The experience of Asian economies in particular in the past two decades has demonstrated the benefits that public investment in education can bring. Integrating ICT in teaching and learning is high on the educational reform agenda. Often ICT is seen as vital tool to fully participate in the knowledge society.

## 1. WHAT IS ICT?

Information and Communication Technologies consist of the hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services.

E-Learning: Commonly associated with higher education and corporate training, e-learning encompasses learning at all levels, both formal and non-formal, that uses an information network—the Internet, an intranet (LAN) or extranet (WAN)—whether wholly or in part, for course delivery, interaction and/or facilitation. Others also term it as online learning.

Information and Communication Technology (ICT) can contribute to universal access to Education, equity in education, the delivery of quality learning and reaching, teachers' professional development and more efficient education management, governance and administration. Introducing ICT as a tool to support the education sector has initiated substantial discussions since the late 1990s. A decade ago the emphasis was on Technical and Vocational Education Training and training teachers.

## 2. ICT IN EDUCATION

Information and communication technologies (ICT) provide a variety of tools that can open up new possibilities in the classroom. They can particularly help tailor the educational process to individual students' needs, and they can also provide learners with the crucial digital competences needed in our knowledge-based economy. The introduction of ICT in the higher education has profound implications for the whole education process. ICT provides a technology that has the capacity to promote and encourage the transformation of education from a teacher directed enterprise towards student-centered models.

Some of the important functions of ICT such as ICT as a change agent in learning process, the impact of ICT on place 'when' and 'where' to learn improve quality of education, enhancing educational management, its role in higher education are discussed below and shown in Fig. 1.

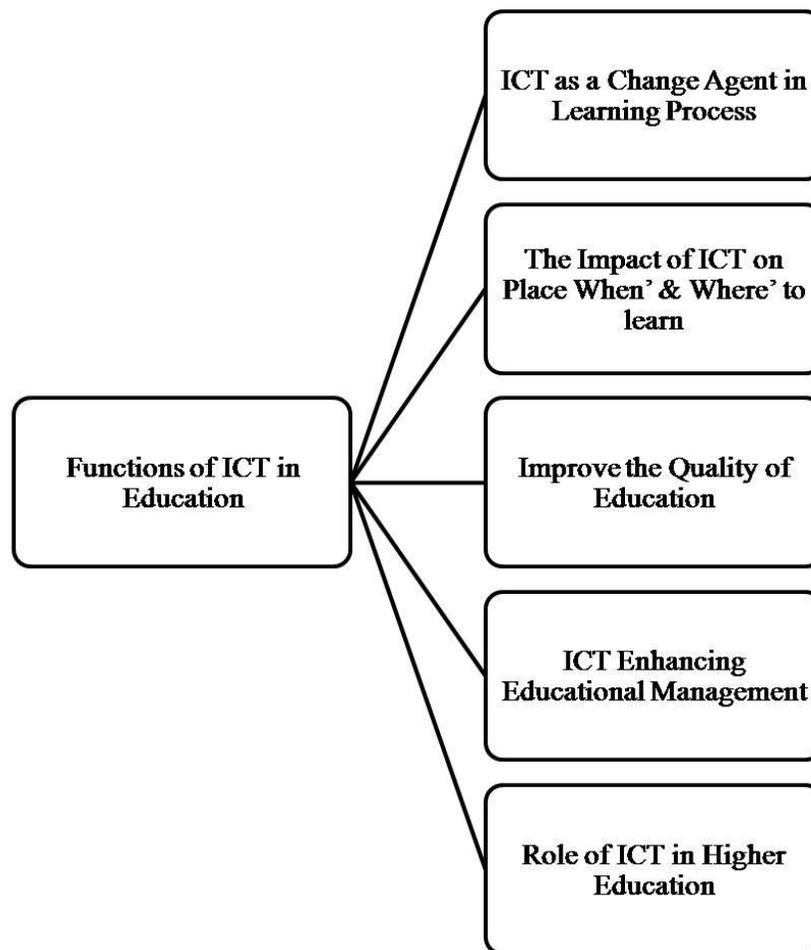


Fig. 1: Functions of ICT in Education

**(a) ICT as a Change Agent in Learning Process**

ICT has unique importance in the educational system and social transactions. It has improved the way students/teachers work, learn, play and most importantly communicate. Its approach in teaching learning is psychologically sound and motivates the students for learning. The use of technological approaches in teaching learning has a positive effect on education, motivating students, promoting learning and changing classroom interaction (Picchio, 2001; Honey, McMillan Culp & Spielvogel, 2005). It provides favourable learning environment so that students can participate actively and is learner centered in the sense that it can accommodate learner's needs and interests. The use of multimedia makes classroom interesting, livelier and improve the student's achievement. In the process of conventional learning, emphasis was given on contents. It follows the particular course structure / syllabus for many years. It is the need of the day to improve quality & structure of the syllabi by enforcing competency & performance based approach towards it. Accordingly, the subject wise textbooks & reference books have been written. One such curricula requires: Access to information types & different forms, Student-centered learning though information access & inquiry. With the help of technologies, it is possible to promote transformation of education from teacher centered instruction to students centered instruction. It supports independent learning and unknowingly insists to think on alternative theories for learning. The conventional teaching process has focused on teachers planning and leading students through a series of in structural sequences to achieve desired outcome. This way of teaching follows the planned transmission of knowledge though some interaction with the content as a means to consolidate the knowledge acquisition. It depends on the process of personal understanding. In this domain, learning is viewed as the construction of meaning rather than memorization of facts.

**(b) The Impact of ICT on Place 'When' & 'Where' to Learn**

In the past, there was no or little choice for students in terms of method & manner in which programs have been delivered. Students are typically being forced to accept what have been delivered. ICT applications provide many options & choices in the same case. It is the good opportunity for students to undertake education anywhere, anytime & any place. The

use of ICT has extended the scope of offering programs at a distance. The off-campus delivery was an option for students who were unable to attend the campuses. Today, many students are able to make this choice through technology-facilitated learning settings, e.g. in many instances, traditional classroom learning has given way to learning in work-based settings with students able to access courses and programs from their workplace. The communications capabilities of modern technologies provide opportunities for many learners to enroll in courses offered by external institutions rather than those situated locally. In case of geographical flexibility, technology, facilitated educational programs also remove the temporal constraints e.g. through online technologies, learning has become an activity that is no longer set within programmed schedules and slots. Learners are free to participate in learning activities when time permits and these freedoms have greatly increased the opportunities for many students to participate in formal programs. With the Internet and the World Wide Web, a wealth of learning materials in almost every subject and in a variety of media can now be accessed from anywhere at any time of the day and by an unlimited number of people. This is particularly significant for many schools in developing countries and even some in developed countries, that have limited and outdated library resources, ICTs also facilitate access to resource persons—mentors, experts, researchers, professionals, business leaders and peers—all over the world (Tinio, 2003).

**(c) Improve the Quality of Education**

Educators, who advocate technology integration in the learning process, believe that it will improve learning and better prepare students to effectively participate in the 21<sup>st</sup> century workplace. ICT encompasses the effective use of equipment and programs to access, retrieve, store, organize, manipulate and present data and information (Dabbagh, 2007). Improving the quality of education and training is a critical issue, particularly at a time of educational expansion. Videos, television and multimedia computer software that combine text, sound and colourful moving images can be used to provide challenging and authentic content that will engage the student in the learning process. Interactive radio likewise makes use of sound effects, songs, dramatizations, comic skits and other performance conventions to compel the students to listen and become involved in the lessons being delivered. The transmission of basic skills and concepts that are the foundations of higher order thinking skills and creativity can be facilitated by ICTs through drill and practice. It has also been used to improve access to and the quality of teacher training. For example: In Indira Gandhi National Open University, satellite-based one-way video-and two-way audio-conferencing was held in 1996, supplemented by print-materials and recorded video, to train 910 primary school teachers and facilitators from 20 district training institutes in Karnataka State. The teachers interacted with remote lecturers by telephone and fax." It also provides opportunities to learners to meet in a virtual space with other users, members and practitioner experts to discuss issues, answer questions and even participate in simulations and management games without having to leave their office or home.

**(d) ICT Enhancing Educational Management**

Computer software programs are being used in time tabling and school management to improve the use of staff time, student time and space, thus reducing costs significantly. It is noted that ICTs in schools can improve quality with less cost. Old ICTs are still cost-effective for provision of education to out-of-school children and youth in developing countries. New ICTs have a very large potential for teacher education in larger quantity and better quality. A combination of old ICTs to widen coverage and access and new ICTs to provide interactivity are supposed to be cost-effective for teacher education. If a nationwide network of community learning centers equipped with computer laboratories with broadband access and trained staff to access online distance learning and to provide tutoring support could be set up in developing countries until a computer is available at home, there are possibilities for these countries to take advantage of the benefits of e-learning mentioned above.

**(e) Role of ICT in Higher Education**

The role of ICT in the education at higher level is recurring and unavoidable. It is a challenge to integrate ICTs with universities, into their strategies and educational process. It should be implemented at national & international level. It will be helpful to improve quality and flexibility, the widening access to the field of tuition; Improvement in learning achievement; Reduction of adult illiteracy rate, with sufficient emphasis on female literacy; Expansion of provisions of basic education and training in other essential skills required by youth and adults; Increased acquisition by individuals and families of the knowledge, skills. It will increase variety of educational services & medium and promote equal opportunities to obtain education & information. It will be helpful in developing a system of collecting & disseminating educational information by promoting technology literacy.

There are following barriers that hinder teachers in the use of ICT.

- 1 **Lack of teacher confidence:** several researchers indicate that one barrier that prevents teachers from using ICT in their teaching is lack of confidence. Dewas (2001) sees this as a contextual factor which can act as a barrier. According to Becta (2004), much of the research proposes that this is the major barrier to the uptake of ICT by teachers in the classroom. Some studies have investigated the reasons for teacher's lack of confidence with the use of ICT.
- 2 **Lack of teacher competence:** Another barrier, which is directly related to teacher confidence, is teachers' competence in integrating ICT into pedagogical practice (Becta 2004). Newhouse (2002) found that many teachers lacked the knowledge and skills to use the computers and were not enthusiastic about the change and integration of supplementary learning associated with bringing computers into their teacher practices.
- 3 **Resistance to change and negative attitude:** Much researchers into the barriers to the integration of ICT into education found that teacher' attitude and an inherent resistance to change were a significant barrier Becta (2004), Watson (1999). Watson (1999) argued that integrating the new technologies into educational settings require change and different teachers will handle this change differently. According to him considering different teachers' attitudes to change is important because teachers' beliefs influence what they do in classrooms. According to Empricia (2006), teachers who are not using new technology such as computers in the classroom are still of the opinion that use ICT has no benefit.
- 4 **Lack of time:** Several studies indicate that many teachers have competence and confidence in using computers in the classroom, but they still make little use of technologies because they do not have enough time. According to Sicilia (2005), the most common challenge reported by all the teachers was the lack of time they had to plan technology lessons, explore the different Internet sites, or look at various aspects of educational software.
- 5 **Lack of effective training:** The barrier the most frequently referred to in the literature is lack of effective training. Pelgrum (2001) found that there were not enough training opportunities for teachers in the use of ICT in a classroom environment. According to Becta (2004), the issue of training is certainly complex because it is important to consider several components to ensure the effectiveness of the training. There were time for training, pedagogical training, skill training and an ICT use in initial teacher training. Cox et al (1999) argue that if teacher are to be convinced of the value of using ICT in their teaching, their training should focus on the pedagogical issues.
- 6 **Lack of accessibility:** Several research studies indicate that lack of access to resources, including home access, is another complex barrier that discourages teachers from integrating new technologies into education. Empirica (2006) found that lack of access is the largest barrier and the different barriers to using ICT in teaching were reported by teacher, for example a lack of computers and a lack of adequate material. Toprakci (2006) found that low numbers of computers, oldness and slowness of ICT systems and scarcity of educational software in the school were barriers to the successful implementation of ICT into education.
- 7 **Lack of technical support:** Without both good technical support in the classroom and whole - school resources, teachers cannot be expected to overcome the barriers preventing them from using ICT (Lewis, 2003). Pelgrum (2001) found that in the view of primary and secondary teachers, one of the top barriers to ICT use in education was lack of technical assistance. Sicilia (2005) argue that technical problems were the major barriers for teachers. These technical barriers included waiting for website to open, failing to connect to the Internet, printers not printing, malfunctioning computers and teacher having to work on old computers.

### 3. CONCLUSION

Education has a vital role in building the society. Education determines standard of society. The quality education helps to empowering the nation in all aspects by providing new thoughts and the ways of implementation of various technologies. There are number of effective teaching & learning methodologies in practice. Technology is the most effective way to increase the student's knowledge. What does ICT offers that the conventional classroom teaching does not? It facilitates construction of knowledge by providing students with experience that are otherwise expensive, time consuming or simply impossible to provide. The role of ICTs in education is recurring and unavoidable. Rapid changes in the technologies are indicating that the role of ICT in future will grow tremendously in the education. It energizes the classroom and enables students to develop good study habits and spirit of knowledge sharing. The need of the day is to create partnership in the learning process itself that is between teachers and learners. Teacher education is criticized often as too content - oriented, providing knowledge, which is narrow and limited. There has been no shortage of advice and guidance on what effective teaching entails. ICT also focuses modification of the role of teachers. It forces the teacher to look beyond the text book and traditional methods. In addition to classroom teaching, they will have other skills and responsibilities. Teachers will act as virtual guides for students who use electronic media. Ultimately, the use of ICT will enhance the learning experiences of

students. Also it helps them to think independently and communicate creatively. It also helps students for building successful careers and lives, in an increasingly technological world.

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