

Information and Communication Technology (ICT) and Teacher Education In Modern Era

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Abstract

In the era of technology ICT aids plenty of resources to enhance the teaching skills and learning ability. With the help of ICT now it is easy to provide audio visual education. The learning resources are being widens and widen. Now with this bright and vast technique as part of the ICT curriculum, learners are encouraged to regard computers as tools to be used in all aspects of their studies. In particular, they need to make use of the new multimedia technologies to communicate ideas, describe projects, and order information in their work. At present ICT may be of some use. It is a well known fact that not a single teacher is capable of giving up to date and complete information in his own subject. The ICT can fill this gap because it can provide access to different sources of information. It will provide correct information as comprehensive as possible in different formats with different examples. ICT provides online interaction facility. Students and teachers can exchange their ideas and views and get clarification on any topic from different experts, practitioners, etc. It helps learners to broaden the information base. ICT provides variety in the presentation of content which helps the learners in improving their concentration, better understanding and long time retention of information which is otherwise not possible otherwise. The learners can get opportunity to work on any live project with learners and experts from other countries. The super highway and cyber space also help in qualitative improvement of Teaching – Learning Process.

I. Introduction

Technology is means for making major improvements in education. The improvement takes place when one uses the technology with maturity and competency. Information and Communication Technology (ICT) is being considered as the technology of having far-reaching consequences in the field of education wherein the whole concept of transactional principles and the focus undergo a change in respect of centeredness of education towards child and learning principles, its effect and efficacy. It is being brought out through researches that ICT provide scope for opening new sources of information and empowers the individual for sustained self learning at his own pace which does not strain the individual.

II. ICT and Teachers Education

In educational reforms the teacher is the last but most crucial chain in the process of educational change. However when considering ICT related innovations in education we cannot conceive teachers as isolated actors. Teachers follow routines that they have learnt during pre-service training and on the job, they are required to implement curricular objectives and contents that quite often are formally established, they work within the constraints of the school organization having fixed lesson tables, etc. Innovations that require teachers to change many aspects of their daily routines are very demanding for them. Complex innovations can only be successful if a number of interacting conditions are met. As the integration of ICT is believed to be so crucial for the welfare and well-being of our future generations and because teachers play such an essential role, the following questions need to be

addressed:

1. What is the impact of ICT on the work of teachers and their working conditions?
2. Are there ways that ICT can improve the effectiveness of the work of teachers?
3. What types of ICT-skills do teachers need?
4. Which policies and programs seem to be effective to prepare and motivate teachers for their role in education for the information society?

These are the kind of questions that already since the early introduction of computers in education are confronting policy-makers, researchers, teacher trainers and of course the teachers themselves. The reader should be aware that 20 years of research have not yet provided a recipe that has led to a large-scale integration of ICT in the lesson practices of teachers. Rather the result of experimentation, surveys and meta-analyses has been that our awareness of the complexity of these questions has been raised and that we are more realistic about the pace of change that can be expected. Information and communication technology (ICT) has brought a revolution in every field of life. Particularly it has become an integral part of education and its impact on teaching and learning is widely accepted. In other country, although the economy is still largely based on low-tech, low-value industries, but there is an awareness in government quarters of the importance of ICT in the country's development. After announcing an 'Information Technology Policy' in 2000 the public sector has initiated many projects to train manpower in the use of ICT. Educational institutions are being funded to provide with ICT equipment and Internet connectivity. The Higher Education Commission (HEC) has subscribed for all universities access to digital libraries with thousands full text journals and books. The impact of the ICT on learning can be approached in different ways. There is no single concept of learning through the use of ICT. Many different types can be envisaged: computer assisted learning, web-learning, computer-classes, online training, distance education, E-learning, virtual learning, digital training, etc. In this review, a broad view on ICT and learning is taken. Consequently, its impact on the learning process should encompass not only traditional learning outcomes but also the use of ICT by teachers (teacher training), the organizational use of ICT by education and training institutions and last but not least the impact of ICT-enabled education on, for instance, personal development, confidence and self-esteem.

ICT provides flexibility to learners which are denied by the traditional process and method. Flexibility is a must for mastery learning and quality learning. Many websites are available on internet which may be utilized by teachers and students for understanding different concepts, improving vocabulary, developing Reasoning & Thinking, etc. ICT can help in preparing students for SAT, GRE, TOEFL, etc.

ICT is an important resource not only because of its unique control capabilities, but because these attributes are also isomorphic with the representations and processes involved in human learning. ICT can be employed for a range of methods that accommodate learner aptitudes and attitude. The ICT for instance can 'short-

circuit' learner cognition by taking on a large amount of information processing burden of the learner. It can dynamically model a process, activate or amplify the learners' own processes (Archibong, et.al., 2010).

The opportunities presented by ICT for improving the quality of teaching learning process and education system can be summarized as below:

- ICT providing how student can learn?
- ICT provides motivation to the teacher and student for better interaction.
- ICT makes teaching and learning more visible and public (Archibong, 2010).
- ICT encouraging collaboration and team work among staff and student (Archibong, 2010)
- ICT develops the attitudes and skills of prospective teachers.
- ICT maintains the quality in teaching and learning system.

ICT is beneficial for both the teachers (Dey, et.al.2005) and the students. But the success of the use of ICT depends on the attitude of teachers and students. The teacher may employ one of the most effective system of ICT in their training design but the success of the system will be reflected in the improved learning only when the student also develop a positive attitude towards the adopted technology .

III. Use of ICT In Education System

A. Immediacy to Information

ICT has provided immediacy to education. Now in the year of computers and web networks the pace of imparting knowledge is very very fast and one can be educated anywhere at any time. New ICT has often been introduced into well-established patterns of working and living without radically altering them. For example, the traditional office, with secretaries working at keyboards and notes being written on paper and manually exchanged, has remained remarkably stable, even if personal computers have replaced typewriters.

B. Any Time Learning

Now in the year of computers and web networks the pace of imparting knowledge is very fast and one can be educated .One can study whenever he wills irrespective of whether it is day or night and irrespective of being in India or in US because of the boom in ICT.

C. Collaborative learning

Now ICT has made it easy to study as well as teach in groups or in clusters. With online we can be unite together to do the desired task. Efficient postal systems, the telephone (fixed and mobile), and various recording and playback systems based on computer technology all have a part to play in educational broadcasting in the new millennium. The Internet and its Web sites are now familiar to many children in developed countries and among educational elites elsewhere, but it remains of little significance to very many more, who lack the most basic means for subsistence.

D. Multimedia Approach to Education

Audio-Visual Education, planning, preparation, and use of devices and materials that involve sight, sound, or both, for educational purposes. Among the devices used are still and motion pictures, filmstrips, television, transparencies, audiotapes, records, teaching machines, computers, and videodiscs. The growth of audio-visual

education has reflected developments in both technology and learning theory.

Studies in the psychology of learning suggest that the use of audio-visuals in education has several advantages. All learning is based on perception, the process by which the senses gain information from the environment. The higher processes of memory and concept formation cannot occur without prior perception. People can attend to only a limited amount of information at a time; their selection and perception of information is influenced by past experiences.

E. Authentic and Up To Date Information

The information and data which are available on the net is purely correct and up to date. Internet, a collection of computer networks that operate to common standards and enable the computers and the programs they run to communicate directly provides true and correct information.

F. Online Library

Internets support thousands of different kinds of operational and experimental services one of which is online library. We can get plenty of data on this online library.

As part of the ICT curriculum, learners are encouraged to regard computers as tools to be used in all aspects of their studies. In particular, they need to make use of the new multimedia technologies to communicate ideas, describe projects, and order information in their work. This requires them to select the medium best suited to conveying their message, to structure information in a hierarchical manner, and to link together information to produce a multidimensional document.

G. Distance Learning

Distance learning, method of learning at a distance rather than in a classroom. Late 20th-century communications technologies, in their most recent phases multimedia and interactive, open up new possibilities, both individual and institutional, for an unprecedented expansion of home-based learning, much of it part-time. The term distance learning was coined within the context of a continuing communications revolution, largely replacing a hitherto confusing mixed nomenclature—home study, independent study, external study, and, most common, though restricted in pedagogic means, correspondence study. The convergence of increased demand for access to educational facilities and innovative communications technology has been increasingly exploited in face of criticisms that distance learning is an inadequate substitute for learning alongside others in formal institutions. A powerful incentive has been reduced costs per student. At the same time, students studying at home themselves save on travel time and other costs.

Whatever the reasoning, distance learning widens access for students unable for whatever reason (course availability, geographical remoteness, family circumstances, individual disability) to study alongside others. At the same time, it appeals to students who prefer learning at home. In addition, it appeals to organizers of professional and business education, providing an incentive to rethink the most effective way of communicating vital information.

H. Better Accesses to Children with Disabilities

Information And Communication Technology has brought drastic changes in the life of disabled children. ICT provides various software and technique to educate these poor peoples. Unless provided early with special training, people profoundly deaf from

birth are incapable of learning to speak. Deafness from birth causes severe sensory deprivation, which can seriously affect a person's intellectual capacity or ability to learn. A child who sustains a hearing loss early in life may lack the language stimulation experienced by children who can hear. The critical period for neurological plasticity is up to age seven. Failure of acoustic sensory input during this period results in failure of formation of synaptic connections and, possibly, an irremediable situation for the child. A delay in learning language may cause a deaf child's academic progress to be slower than that of hearing children. The academic lag tends to be cumulative, so that a deaf adolescent may be four or more academic years behind his or her hearing peers. Deaf children who receive early language stimulation through sign language, however, generally achieve academically alongside their hearing peers.

IV. Conclusion

The integration of information communication technology in teaching is a central matter in ensuring quality in the educational system. There are two equally important reasons for integrating information communication technology in teaching. Pupils must become familiar with the use of information technology, since all jobs in the society of the future will be dependent on it, and information communication technology must be used in teaching in order to improve its quality and make it more effective.

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