RESEARCH PAPER

The Impact of Information and Communication Technology on Teacher Education

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ABSTRACT

The most striking and latest innovation in the field of education is the integration of Information and Communication technology in quality education. The quality education depends upon the quality of teachers. Teacher's education plays a vital role developing quality education which is the present requirement in the modern information and communication era. The educational institutions, administrators, and teachers should cope with the suddenly increasing demand for information and skills. One cannot depend on only the same big blackboards, an overhead projector and video-graphed concepts as either because the transaction of curriculum is poor or the tools used in its transition lack application and skill. Technological resources that are available for teaching and learning specially include computer hardware and software, in addition to the growing range of peripherals, which include video, CD-ROM and electronic communication media. The rapidly changing nature of computer technology continues to expand the range of resources available for any subject- specific learning. Educators must be imaginative, flexible and willing to renew their vision of teaching and learning if they are to fully realize the potential of educational technology. The present literature review gives an over view of the use of ICTs in the field of education focusing on its impact on teaching learning process, quality and accessibility of education, motivating learners, learning environment, and students' academic performance.

Key words: ICT in Education, impact of ICT, roles of ICT, teaching and learning process.

INTRODUCTION

The education plays vital role to build the society and Quality education helps to empowering the nation in all aspects. There are many ways to increase the learner's knowledge, and technology is the most effective way. Information and communication technologies (ICTs) is the catchall phrase used to describe a range of technologies for gathering, storing, retrieving, processing, analyzing and transmitting information. ICTs are the fundamental building blocks of the present day society. The contemporary society is highly influenced by ICTs in every aspect of life, including education. The effects are experienced more in the field of education since it has the potential for teachers to transform the teaching methodology to meet individual needs. Today, schools are under pressure to adapt to this technological innovation. ICT provide remarkable opportunities for developing countries to enrich their educational system since it can help in acquiring and assimilating knowledge. ICT is a pivotal tool in spreading quality education. According to Kofi Annan, the former General Secretary of the United Nations, ICT helps to achieve the aim of Universal Primary Education by 2015; since it can take learning beyond the four walls of the classroom. This implies the vital role played by ICT in the educational sector. The application of information and communication technologies in education has been divided into two main categories: ICTs for Education and ICTs in Education. ICTs for education identify the development of information and communications technology especially for teaching-learning purposes while the ICTs in education includes the adoption of basic elements of information and communication technologies in the teaching-learning process.

ICT provides great flexibility in education to ensure that learners are able to access knowledge anytime and from anywhere. It also affects the way knowledge is imparted and how students learn. ICT can help to improve student learning by providing better instructional techniques. A report made by the National Institute of Multimedia Education in Japan, concludes that students' exposure

to ICT through curriculum integration has a positive impact on their achievement with regard to knowledge, reasoning and presentation skills in various subject areas.

OBJECTIVES OF ICT IN EDUCATION
The following are the aim and objectives of ICT implementation in education
1. To implement the principle of life-long/education.
2. To increase a variety of educational services and medium/method.
3. To promote equal opportunities to obtain education and information.
4. To develop system of collecting and disseminating educational information.
5. To promote technology literacy of all citizens, especially for students.
6. To develop distance education with national contents.
7. To promote the culture of learning at school, development of learning skills, expansion of optional education, open source of education etc.
8. To promote the culture of learning at school development of learning, skills, expansion of optional education open source of education etc.
9. To promote and facilitates the relationship between human and the environment
10. To promote the technology literacy among citizens, and the equal importance to slow and gifted children
11. To increase the variety of educational methods and services and literacy rate through distance education
12. Increased acquisition of knowledge, skills by individuals required for better living and sustainable development

METHODOLOGY
This present study is based on secondary sources like books, Articles, Journals, Thesis, University News, Expert opinion and websites etc. The method used is Descriptive Analytic method.

ICT IN TEACHER EDUCATION
Now a day's Education is based on child centric education and the classroom is now changing its look from the traditional one i. e. from one way to two way communications. Present day education system insists on research, critical thinking, and evaluation skills since students have access to large variety of sources to get information. Hence, the learning environment provided should follow an effective application of knowledge that students are required to master, in order to avoid the attained knowledge being passive So that the teacher should prepare to cope up with different technology for using them in the classroom for making teaching learning interested. For effective implementation of certain student-centric methodologies such as project-based learning which puts the students in the role of active participation and technology becomes the appropriate tool.
ICT has enabled better and swifter communication; presentation of ideas more effective and relevant way. It is an effective tool for information acquiring-thus students are encouraged to look for information from multiple sources and they are now more informed then before. The new trends in teacher education are Inter-disciplinary Approach, Correspondence courses, orientation courses etc. Simulated Teaching, Micro Teaching, Programmed Instruction, Team Teaching are also used in teacher education. Now-a-day Action Research also implemented in Teacher Education. ICT acts as the gateway to the world of information and helps teachers to be updated. It creates awareness of innovative trends in instructional methodologies, evaluation mechanism etc. for professional development.

DIFFERENT STRATEGIES FOR APPLYING ICT IN TEACHER EDUCATION
➢ Providing adequate infrastructure and technical support.
➢ Applying ICT in all subjects.
➢ Applying new Pre-service teacher Education curriculum.
➢ By using application software, using multimedia, Internet e-mail, Communities, understanding system software

ROLE AND BENEFITS OF ICT IN THE FIELD OF EDUCATION

ICTs are a potentially powerful tool for extending educational opportunities. The use of ICT is making major differences in the learning of students and teaching approaches. Several studies reveal that students using ICT facilities mostly show higher learning gains than those who do not use, actually it acts as an assisting tool. It provides quicker and easier access to more extensive and current information. ICT can also be used to do complex tasks as it provides researchers with a steady avenue for the dissemination of research reports and findings (Yusuf Musibau Adeoye, *et al.*, 2013). Honey and Mandinach (2003) advanced three major reasons for information and communication technology in education. They suggested that it is a tool for addressing challenges in teaching and learning situation; a change agent, and central force in economic competitiveness. As a change agent, it is capable of changing the content, methods and overall quality and quantity of teaching and learning, thereby reducing teacher's workload and ensuring inquiry-oriented classroom. Moreover, ICT a central force in economic and social shifts that has technology skill critical to future employment of today's student. Role of technology in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary education policy, if ICT is properly used; it holds great promise to improve teaching and learning in addition to shaping work force opportunities.

The use of ICT for teacher training has been recognized by the governments of India. Broadening the availability of quality education materials in India, several initiatives are ongoing for creating digital repositories and learning objects; the Sakshat Portal of Government of India, initiatives like National Program of Technology Enhanced Learning (NPTEL), the Multimedia Educational Resource for Learning and Online Teaching (MERLOT) seek to create quality digital content for different levels of education (Jyoti Narayan Patra, 2014). The main roles of ICT in education are (Swati Desai, 2010 and Baishakhi Bhattacharjee *et al.,* 2016)

1. To develop variety of educational services and medium.
2. To promote equal opportunities to obtain education and information.
3. To develop a system of collecting and disseminating educational information.
4. To promote technology literacy and support distance learning.
5. To support sharing experience and information with others.
6. Helps in improving innovative teaching skills and makes classroom teaching effective.
7. Acts as an assisting tool for teaching and learning itself
8. ICT helps teachers to motivate students and develop interest in learning.
9. ICT is store house of educational institution because all educational information can safely store through ICT.
10. ICT helps teachers to communicate properly with their students. So ICT bridge the gap between teacher and students and plays an important role in student evaluation.

ICT - TEACHING AND LEARNING

The major role of ICT in teaching and learning is the presentation and use of teaching aids. The quality of teaching aids in recent times has improved. The variety of teaching aids ranges from a two dimensional chart to a three dimensional model. Further the introduction of electronic media has brought a third dimension and movement teaching aids in education. Information and communication technology helps to develop simulated programmes in the class room which are designed to depict the real world happenings without the danger, expense or time needed to experience the actual event. They provide continuous feedback to the user regarding the status of the event and the options available (Saltinski 1981).

In the communication technology, at present, the wealth of information that is being transferred across the internet is impressive. Various mechanisms, the World Wide Web (www) browsers, email and news groups have been established to allow people to asses, send or retrieve information across the world. The internet browsers like Netscape and MS internet explorer enable searching, viewing and displaying the information to any person interested in anything.

LIMITATIONS OF ICT USE IN EDUCATION

Limitations can be categorized as teacher related, student related, and technology related. Teacher's attitude towards use of these technologies is vital, many observations reveal that some teachers do not have clarity about how far technology can be beneficial for the facilitation and enhancement of learning due to lack of competency to handle, whereas some teachers may have positive attitudes to the technology. Teacher resistance and lack of enthusiasm to use ICT in education may also be another limitation (Sharma H.K. 2015). Unless teachers develop some basic skills and willingness to experiment with students, ICT use in education is in a disadvantage (Brosnan, 2001). Lack of infrastructure and equipment's are another problem for back warding Indian education system.

SUGGESTIONS

The integration of ICT in teacher education is facing a lot of limitations and difficulties. However, there is a great need to bring positive changes in this scenario and the teacher education system can't afford more to neglect the use of ICT in managing its affairs. There is a strong link between a nation's level of development and the level of technology used for such development. Many teachers may not have the required IT skills and feel comfortable; they must be trained for the use of these skills. Advance computer laboratories and other adequate infrastructure should be there in academic institutions.

CONCLUSION

Information communication technologies are influencing all aspects of life, in which the impacts of ICT are significant in teacher education. ICTs help expand access to education, motivate to learn, facilitates the acquisition of basic skills, and can transform the learning environment thus help improving the quality of education. ICT has tremendous potential for education. ICT enables a teacher to reach out widely efficiently and effectively. It helps teachers and institutions to be more modern and dynamic. Eventually, the use of ICT will enhance the learning experiences of students. It also helps for building a successful career, in a technology savvy world.

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