

The Role and Impact of ICT in Improving the Quality of Education: An Overview

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Abstract: *The role of Information & Communication Technology (ICT) in Education is undisputed globally. ICT have potentially powerful tool for extending educational opportunities. ICT have the potential for increasing access to and improving the relevance and quality of Education. The impact of ICT for teaching and learning process has become pertinent as it facilitates teaching and learning process, create conducive learning environment, and help learners develop creative thinking and self confidence. ICT has opened new challenges for quality education. It has changed many aspects of the lives. The purpose of this paper is to discuss the benefits of Information Communication Technology (ICT) use in education, in the enhancement of teaching and learning and effective introduction of ICT in the teaching and learning process is an indispensable means of improving it. It highlights the impacts and benefits of ICT in education.*

Keywords: *ICT, impact of ICT, roles of ICT, teaching and learning process.*

1. INTRODUCTION

ICT stands for Information and Communication Technologies and are define, for the purpose of this primer, as a " diverse set technological tools and resources used to communicate, and to create, disseminate, store, and manage information. The United Nations Development Programme (UNDP) defines Information and Communication Technologies: "ICTs are basically information-handling tools-a varied set of goods, application and services that are used to produce, store, process, distribute and exchange information....."

Quality education depends on the development of information technology in several provision such as enlarging the motivation of learner, enrichment of basic skills and increasing teacher training in technology. Information communication technology serving as curriculum/subject transformation tool, It used properly to create a environment with learner centered. Information and communication technologies are used by the teachers to instruct the students to know and access the new pedagogy. Information and Communication Technologies (ICTs) is increasingly becoming indispensable part of the education system. It has changed many aspects of the lives. Those changes have leads to educational institutions, administrators, teachers to rethink their roles, teaching and vision for the future. ICT has witnessed newest challenges for quality education among learners.

Tinio (2002), states the potentials of ICTs in increasing access and improving relevance and quality of education in developing countries. ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution, and widen the range of opportunities for business and the poor. One of the greatest hardships endured by the poor, and by many others, who live in the poorest countries, in their sense of isolation, and ICTs can open access to knowledge in ways unimaginable not long ago.

ICTs force that has changed many aspects of the way we live. If one was to compare such fields as medicine, tourism, travel business, business, law, banking, engineering and architecture, the impact of ICT across the past two or three decades has been enormous. The way these fields operate today is vastly different from the ways they operated in the past. But when one looks at education, there seems to have been an uncanny lack of influence and far less change than other fields have experienced. A number of people have attempted to explore this lack of activity and influence (eg.Soloway and Prior, 1996; Collis, 2002)

In Watson's (2001) description, ICTs have revolutionized the way people work today and are now transforming education systems. As a result, if schools train children in yesterday's skills and technologies they may not be effective and fit in tomorrow's world. This is a sufficient reason for ICTs to win global recognition and attention. For

instance, ICTs are dependable tools in facilitating the attainment of one of the Millennium Development Goals (MDGs), which is achievement of universal primary education by the year 2015. Kofi Anan, the former United Nations Secretary General, points out that in order to attain the goal of Universal Primary Education by the year 2015; we must ensure that information and communication technologies (ICTs) unlock the door of education systems. This indicates the growing demand and increasingly important place that (ICTs) could receive in education. Since ICTs provide greater opportunity for students and teachers to adjust learning and teaching to individual needs, society is, forcing schools to give appropriate response to this technical innovation.

2. OBJECTIVES OF ICT IN EDUCATION

1. Improvement in learning pace and achievements.
2. Increased acquisition of knowledge, skills by individuals required for better living and sustainable development.
3. To promote and facilitates the relationship between human and the environment.
4. To implement the principle of long lasting education.
5. To increase the variety of educational methods and services and literacy rate through distance education.
6. To promote the technology literacy among citizens, and the equal importance to slow and gifted children.

3. ROLE AND BENEFITS OF ICT IN THE FIELD OF EDUCATION

The impact of ICT on what is learned Conventional teaching has emphasized content. For many years course have been written around textbooks. Teachers have taught through lectures and presentations interspersed with tutorials and learning activities designed to consolidate and rehearse the content. Contemporary settings are now favouring curricula that promote competency and performance. ICT and their outcomes as play by other technologies in making our lives quite comfortable and purposeful. The ICT has been developing very rapidly nowadays. Therefore, in order to balance it, the whole educational system should be reformed and it should be integrated into educational activities, Traditional learning was hard, introduction of ICT has change the traditional concept. It has the potential to transform the nature of education. ICT and their role have a tremendous potentiality of serving its cause and helping the persons connected with the process and product in a number of ways. Role or impact of ICT in education are-

- ICT has the potential to improve education system of the nation.
- Enable student to demonstrate achievement in ways which might not be possible with traditional method.
- ICT may help student to satisfy their urges of curiosity, inventories and construction.
- ICT helps enhance the quality of education by facilitating new forms of interaction between students, teacher, education employees and the community.
- ICT act as and provides students and teachers with new tools that enable improved learning and teaching and adds to skills formation.
- ICT improve quality and structure of the syllabi by enforcing competency and performance based approach towards it.
- Access to the learning programme any time convenient to the learner, learner can be at any place to log on.
- The teacher gets sufficient help from ICT, in their task of teaching.
- To increase variety to educational services and medium.
- It improves that learning process through the provision of more interactive educational materials that increase learner motivation and facilitate the easy acquisition of basic skills.
- ICT makes education more accessible for all, bringing to the doorstep of children living in remote rural location by means of enabling distance learning.

- Improving the efficiency of educational administration and management at every level from the classroom, school library, through the school and on to the sector as a whole.

Moreover, few of ICTs benefits to the **classroom and the education** process mentioned in the document are that ICTs:-

- Offer the opportunity for more student centered teaching,
- Provide greater opportunity for teacher-to-teacher and student-to-student communication and collaboration,
- Give greater exposure to vocational and workforce skills for students,
- Provide opportunities for multiple technologies delivered by teachers,
- Create greater enthusiasm for learning amongst students,
- Provide teachers with new sources of information and knowledge,
- Prepare learners for the real world,
- Provide distance learners country-wide with online educational materials
- Provide learners with additional resources to assist resource-based learning. Furthermore, the document states ICTs to cover all the technologies used for holding and communicating information and their use specifically in education with overall policy goals of:
 - Producing ICT literate citizens,
 - Producing people capable of working and participating in the new economies and societies arising from ICTs and related developments,
 - Leveraging ICT to assist and facilitate learning for the benefit of all learners and teachers across the curriculum,
 - Improving the efficiency of educational administration and management at every level from the classroom, school library, through the school and on to the sector as a whole,
 - Broadening access to quality educational services for learners at all levels of the education system, and
 - Set specific criteria and targets to help classify and categorize the different development levels of using ICT in education.

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.

The need for linking ICT to education policies requires recognition. In reflecting the importance of technologies, education policies should focus in the following major points (**UNDP, 2004**):

(1) Education policies have to reflect alternate and new teaching paradigms that ICT can offer in terms of providing a more effective, relevant, and flexible mode of learning for the underprivileged and the general masses.

(2) Policies must take into account the retraining of teachers incorporating use of ICTs in education. Teachers should skillfully redesign learning environments so that students can transfer their newly gained ICT skills to other applications to use in an ICT rich environment.

(3) Most educational policies reflect the need for ICT infrastructure but they left out the need for local educational content. The development of instructional content-ware remains a neglected area, affecting investments in hardware and resulting in a heavy economic and educational loss.

(4) The focus of developing countries should be on how they use ICTs to compensate for the factors that are lacking in education, namely, well-trained teachers and the resources to pay for expensive equipment. The task is to concentrate on technological alternatives that, at low cost, bring to students the imagination and creativity of a few excellent teachers.

4. MAJOR ICT INITIATIVES IN INDIA

4.1 UGC-INFONET: UGC-INFONET was established in the end of 2004 by UGC (University Grant Commission). UGC-INFONET offers an electronic access to all the scholarly literature and material available on the internet. The programme was executed by the Director, Information and Library Network (INFLIBNET) Centre, Ahmedabad and the UGC affiliated universities are the member of this programme.

4.2 BRIHASPATI: It is an e-learning platform. It was developed as an open source freeware by IIT Kanpur. Faculties can post their handouts, lecture notes and study material in electronic format on the internet.

4.3 EDUSAT: EDUSAT was launched by the ISRO (Indian Space Research Organization) in collaboration with Ministry of Human Resource Development (MHRD). This project aims on multicasting interactive multimedia for the educational sector and augment distance education capabilities in the country.

4.4 SAKSHAT: SAKSHAT is an educational portal under MHRD which provides links to resources available on the web. It addresses all the educational related needs of teachers, students, researchers and learners. The content was developed by UGC, AICTE, IGNOU, NCERT, KVS, NVS, CBSE, IISc, IITs.

4.5 e-SIKSHAK: e-SIKSHAK is an e-learning framework launched by Centre for Development of Advanced Computing (CDAC) a Scientific Society of the Ministry of Communications and Information Technology, Government of India. This portal can be used to learn free courses in Telugu.

4.6 e- YANTRA: e-Yantra is an initiative by IIT Bombay and is sponsored by MHRD under the National Mission on Education through ICT program that aims to create the next generation of embedded systems engineers with a practical outlook to help provide practical solutions to some of the real-world problems.

4.7 OSCAR++: OSCAR (Open Source Courseware Animations Repository) aims to build a large repository of web-based, interactive animations and simulations, referred as learning objects (LOs), for teaching and learning concepts in science and technology. Such systems are useful for both classroom learning, independent learning and distance education.

4.8 FOSSEE: FOSSEE stands for Free and Open Source Software in Education and is part of National Mission on Education through Information and Communication Technology (ICT), Ministry of Human Resource Development (MHRD), Government of India. The project aims at promoting the use of FOSS tools to improve the quality of education in India.

4.9 e- KALPA or D'Source: This project is sponsored by the Ministry of Human Resources, Government of India as part of the National Mission in Education through Information and Communication Technology. This project is launched with an aim 'Creating Digital-learning Environment for Design' and thus creating learning environments that will provide access to acquisition of critical knowledge, skills, and abilities in the field of design.

4.10 VIRTUAL LEARNING ENVIRONMENT (VLE): VLE is an online platform for e-resources which fulfills the needs of several courses taught at Undergraduate and Postgraduate level. It is an initiative of Institute of Life-Long Learning, University of Delhi conceived in 2012.

5. THE IMPORTANCE OF ICT IN EDUCATION

Conventional teaching has emphasized content and contemporary settings are now favoring curricula that promote competency and better performance, which are well supported and encouraged by emerging instructional technologies (Stephenson, 2001). The growing use of ICTs as tool of everyday life is increasing the quality of student learning. ICT is supporting changes to the way students are learning as they move from content centered curricula to competency based curricula; associated with the move from teacher centered form of delivery to student centered forms (Yusuf et al. 2013). It improves the quality of instruction and encourages collaborative learning. ICT facilitates fast and accurate feedback to learners (Becta, 2003). It promotes deep learning and allows educators to respond better to different needs of different learners (Lau & Sim, 2008). This activates paced learning and allows effective mapping of learning path ways. According to (Newhouse P., 2002), ICT supported learning environments could be beneficial to a constructivist teaching approach. One of the major advantages of using ICTs in the education system has been to prepare the present and next generation of students for a workplace where ICTs particularly computers internet and other related technologies are becoming more and more ubiquitous. These computer savvy and technologically literate students possess the desired competencies to use ICTs effectively (Anu Sharma et al, 2011).

6. CONCLUSION

Revolution in information and communication technologies has reduced national boundaries to meaningless lines drawn on maps. In this scenario, education has been identified as one of the services which need to be opened up for free flow of trade between countries. ICTs use in modern education can save a lot of money of the Government. Moreover a lot of qualitative improvement can be seen as resource persons for the training can be best of the world. ICT can be helpful in quality and standards of education by implementing it in various phases of education. But lack of resources within the educational sector educational is a hindrance in the implementation of ICT in developing in 21st century. The task of employment and integration of ICT in modern education is facing a lot of challenges. the challenges like- availability of ICT facilities in educational institution, lack of knowledge to handle ICT equipment, language problem, insufficient funds, lack of trained etc. but we can overcome the challenges- to create awareness on ICT Education, to formulate policies to promote broad access to skills and competencies for learning and adopting ICT, enlarge community participation for self-sustainability in ICT application, develop supportive infrastructure facilities such as electricity, internet, etc. Government should actively. Responsible authorities have to try and overcome these challenges, so that the modern education can benefit and also its help 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.

SUGGESTIONS

1. The consideration of ICT as a tool that can contribute to continuous educational innovation in the centers should be introduced in the school strategic plans and, even more, in each year's teaching plan.
2. Advance computer laboratories and other adequate infrastructure should be there in academic institutions.
3. The teaching staff has a fundamental role in determining what to teach and how to teach it (and what the students are going to learn) using ICT, they must be trained for the use of these skills.

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