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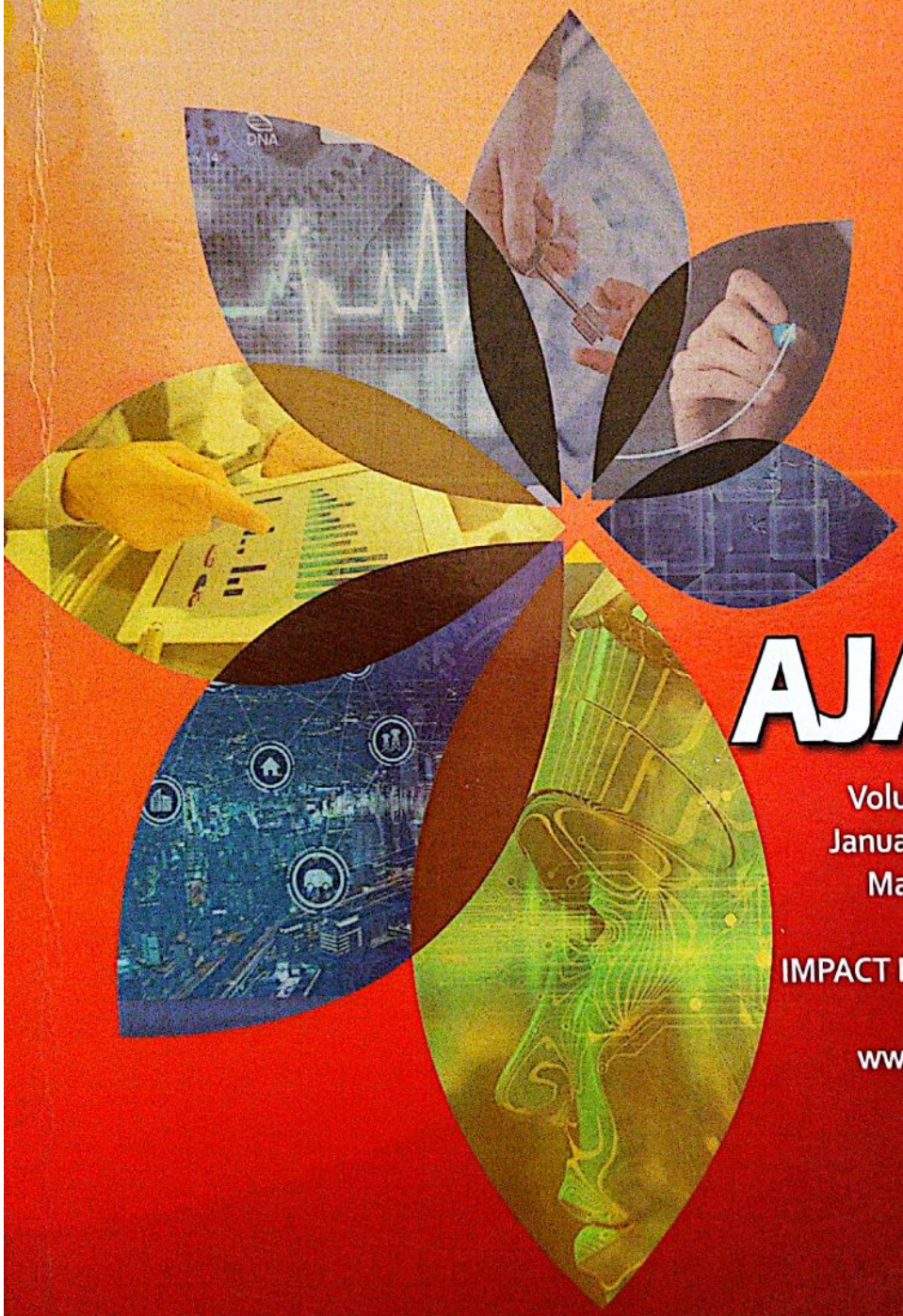

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8. The Roles of ICT in Education

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Abstract

Technical advancement of the modern world, popularity of social networks are significantly changing the direction in education. Both the future of the education and of society in general depends on understanding by all participants of educational process of the direction of a strategic development of education (Koryuhina C, Shamshina T). ICTs are making dynamic changes in society. They are influencing every aspects of human life. ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters (UNESCO, 2002).

As world is moving rapidly towards digital information, the role of ICTs in education becomes more and more important and this importance will continue to grow and develop in 21st century. This paper highlights various impacts of ICT on contemporary higher education and also discusses potential future developments. It also explores some challenges in higher education like cognitive tutors, need for developing a model, collaborative authoring etc. It is generally believed that ICTs can empower teachers and learners, making significant contributions to learning and achievement. The innovation of the Information Communication Technology (ICT) in modern teaching, which is a pivotal for national development, has not been inculcated in third world countries.

Key words: ICT, technology, scientific, information, communication

Introduction

According to Daniels (2002) ICTs have become within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy. However, there appears to be a misconception that ICTs generally refers to 'computers and computing related activities'. Pelgrum and Law (2003) state that near the end of

the 1980s, the term 'computers' was replaced by 'IT' (information technology) signifying a shift of focus from computing technology to the capacity to store and retrieve information. This was followed by the introduction of the term 'ICT' (information and communication technology) around 1992, when e-mail started to become available to the general public (Pelgrum, W.J., Law, N., 2003).

According to UNESCO (2002) information and communication technology (ICT) may be regarded as the combination of 'Informatics technology' with other related technology, specifically communication technology. The various kinds of ICT products available and having relevance to education, such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counselling, interactive voice response system, audiocassettes and CD ROMs etc have been used in education for different purposes (Sharma, 2003; Sanyal, 2001; Bhattacharya and Sharma, 2007). A great deal of research has proven the benefits to the quality of education (Al-Ansari, 2006). ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Davis and Tearle, 1999; Lemke and Coughlin, 1998; cited by Yusuf, 2005).

In recent years there has been a groundswell of interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. But ICTs are more than just these technologies; older technologies such as the telephone, radio and television, although now given less attention, have a longer and richer history as instructional tools. For instance, radio and television have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and therefore most dominant delivery mechanism in both developed and developing countries. The use of computers and the Internet is still in its infancy in developing country.

Definition of ICT

ICT is the means in which people interact with their colleagues around the world, exchange their ideas, information, messages and co-ordinate each other through variety of technological means. ICT is an acronym that stands for "Information Communication Technologies". "ICTs are the computing and communication facilities and features that variously support teaching, learning and a range of activities in education." According to Khan et al,

information communication technology (ICT) refers to technologies that provide access to information through communications. Also, ICT is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as the various services and appliance with them such as video conferencing and distance learning.

Objectives

The followings are the aim and objectives of ICT implementation in education:

1) To implement the principle of life-long learning / 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 a 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) Improvement in learning achievement;
8) Expansion of provisions of basic education and training in other essential skills required by youth and adults;

Role of ICT in Education

Presently there are four areas of education namely: Teaching, Learning, Curriculum and Educational programme. ICT has been added essentially in the 21st century as the fifth potent area of education (Sampath, 2011). According to the revised Draft on National Policy Information Communication Technology in school education (prepared by the Department of School education literacy, MHRD in 2011) ICTs are all devices, tools , contents, resources, forums, and services, digital and those that can be converted into or delivered through digital forms, which can be deployed for realizing the goals of teaching learning , enhancing access to and reach of resources, building capacities, as well as management of educational system. This will not only include hardware devices connected to computers and software application but also interactive digital content, Internet and other satellite communication devices, teleconferencing, video conferencing, web–based content repositories, interactive forums, learning management system and management information system.

Benefits of ICT in Teaching Learning Process

The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning and research (Yusuf, 2005) .ICTs have the potential to accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Davis and Tearle, 1999; Lemke and Coughlin, 1998; cited by Yusuf, 2005). In a rapidly changing world, basic education is essential for an individual be able to access and apply information. Such ability must find include ICTs in the global village. 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. Contemporary ICTs are able to provide strong support for all these requirements and there are now many outstanding examples of world class settings for competency and performance-based curricula that make sound use of the affordances of these technologies (Oliver, 2000). ICT is just a piece of a large puzzle under the heading of "ways of securing and facilitating high quality Educational life at school and home" for students (Talaea, 2011). ICT plays an effective role via creating motives, deepening and expanding learning and sustaining learning as well as removing pervasive boredom and creating subjective skills for accounting (Shariatmadari, 2012). Through increasing critical thinking among learners and cooperation and participation in learning, ICT leads to an expansion of students and instructors' thinking skills; thus, ICT, via teaching social skills, brings about conditions wherein the instructor shares his/her own information with others through social communications e.g. emails, Bluetooth, What's App, SMSs and modern social networks and thus reinforces social communication anytime and anywhere based on the learner's responsibilities.

According to Cabero (2001), "the flexibilization time-space accounted for by the integration of ICT into teaching and learning processes contributes to increase the interaction and reception of information. Such possibilities suggest changes in the communication models and the teaching and learning methods used by teachers, giving way to new scenarios which favour both individual and collaborative learning". The use of ICT in educational settings, by itself acts as a catalyst for change in this domain. ICTs by their very nature are tools that encourage and support independent learning. Students using ICTs for learning purposes become immersed in the process of learning and as more students use computers as information sources and cognitive

tools (Reeves & Jonassen, 1996), In this domain learning is viewed as the construction of meaning rather than as the memorisation of facts (Lebow, 1993; Jonassen & Reeves, 1996).

Learning approaches using contemporary ICTs provide many opportunities for constructivist learning through their provision and support for resource-based, student centered settings and by enabling learning to be related to context and to practice (Berge, 1998; Barron, 1998). As mentioned previously, any use of ICT in learning settings can act to support various aspects of knowledge construction and as more and more students employ ICTs in their learning processes, the more pronounced the impact of this will become. Teachers generate meaningful and engaging learning experiences for their students, strategically using ICT to enhance learning. Students enjoy learning, and the independent enquiry which innovative and appropriate use of ICT can foster. They begin to acquire the important 21st century skills which they will need in their future lives.

- ICT can make the teaching learning process more interactive and effective.
- It helps in motivating the students towards their lesson.
- Learners can learn and work at their own pace just with little guidance from the teachers.
- ICT enables the learners to interact with the teachers, peers and experts on various issues outside the classroom.
- Learners can get various information very quickly.
- IT also helps the teachers to evaluate the learner's progress and proficiency in certain skills.
- It can also remove the monotonousness of traditional classroom system.
- Encourages contact between students and faculty through social networking tools, blogs, wikis, text message etc, especially those students who are shy and unable to speak out in face-to- face classroom settings.

Problem faced in implantation of ICT in Teaching –Learning process in Indian Context

One of the conditions for applying ICT at schools in the field of learning and teaching is that teachers should be practically acquainted with the digital world; of course, this issue is underway in the Iranian Eduactional system; but due to some reasons including lack of infrastructure and the mere reception of degrees from relevant companies and teachers and instructors who have not got familiar with the said virtual world, this issue might not be able to

attain its own position at schools and at universities around the country. Thus, basic requirements in the Fundamental Development Document (on Macro Strategies), in the area of ICT contain intelligent utilization of modern technologies within the formal and general Eduactional system based on Islamic Criteria. Thus, costs need to match functions (Attaran, 2014). Students learning via ICT, as well as teachers need to apply their own self-regulation skills, i.e. examining thoughts, senses and behaviors in order to reach their own goals through organizing data and writings and computers play a key role in here (Abbasi Avval, 2012).

- Lack of proper infrastructural development in rural areas.
- Lack of Skilled and trained teacher in primary and secondary schools in remote areas where most of the primary schools are run by single teacher.
- Lack of proper funding is another problem, mostly found in developing country. ICT implementation in teaching learning process needs widespread investment which is not possible for developing country, though India is trying their level best to reach the elevation but still it is on the process.
- Lower bandwidth capacity than developed country.
- Language barriers: An estimated 80% online is in English Language. A large proportion of educational software produced in world market are in English. Where as in developing country like India Where English proficiency is not high especially outside the cities.
- Lack of ICT awareness among the mass. Now it is high time for the people to change the mindset and accept the new technology for their future academic growth.

Fredrikson et al (2009) conclude in a research that using ICT in Eduactional innovations helps learning and teaching process and emphasizes that teachers need to utilize technology skills and learn relevant curricula for increasing IT at schools (Shariatmadari, 2012).

1. Teachers simply acquiesce to electronic content representations in rooms known as IT at some schools and in some hours for some special lessons cannot be a rational justification in using ICT within the field of learning and teaching. In this direction, for authors, lack of hardware infrastructure and expansion of networks and special software, either for schools or at schools or for students especially in deprived areas are among the obstacles of this issues;

2. Teachers and managers' lack of familiarity (especially elder people) with ICT and those who are not familiar with hardware and software tools needed for learners and instructors;
3. It is observed that learners' insufficient familiarity with languages and formal global writings have brought about problems for them to intelligently use the information;
4. It appears that learners, due to marginal issues including more attention to subsistence issues and, lack sufficient time for learning and spending time for learning information literacy and using curricular lessons appropriate with ICT as well as formulation of curricular sources with regards to learning and teaching issues. Thus, they get acquiesced to the same traditional methods in classrooms.;
5. Lack of an information literate instructor as regards ICT at schools paves the way for a periodical passage in using the available facilities and thus creates problems for the acculturation off thus issue in the area of learning and teaching at classrooms;
6. Non-standard classes in using and utilizing ICT as well as inability of teachers in preparing Eduactional content appropriate with ICT in fostering curricular concepts teaching.

Conclusion

Transition, Transformation and Revolution is the scenario of todays educational system. Application of ICT in education and teaching learning process has changed the traditional system of learning to modern ICT based learning. Teaching- learning process is not now limited within the boundaries of classroom. Several surveys are showing that ICT use in education system of developed nations is comparatively advanced than ICT used in education system of developing countries. ICT use in education system of developing countries is also facing some challenges. The results provided by both the quantitative and qualitative analysis of the literature obtained will be exposed especially regarding those aspects which are related to ICTs for Education and ICTs in Education. ICTs for education refers to the development of information and communications technology specifically for teaching/learning purposes, while the ICTs in education involves the adoption of general components of information and communication technologies in the teaching learning process. The adoption and use of ICTs in education have a positive impact on teaching, learning, and research.

ICT introducing innovative pedagogies in to the classroom, creating network among educational institution, improving overall standard of education by reducing the gap between the quality of education in urban area and rural area, initiation of smart school with objectives to foster self-paced, self assessed and self-directed through the application of ICTs, and developing ICT policy for education and training. Role of teacher is very important in teaching learning process. Teacher is the main pillar of teaching –learning process. Teacher is the facilitator of learning. ICT cannot replace the teacher; it can aid the teacher in the process of teaching and make the teaching–learning process more interactive. The effective use of ICTs in teaching learning process also depends on teachers ICT competency and skill. So the teachers have to realize that if the students are to achieve a high level of competency and competitiveness, they have no other choice but to adopt technology as an. In future higher education will look quite different in terms of the mission and functions of higher education institutions, integrated tool in the field of education.

Very few strong examples of integration of ICT into classroom teaching learning is visible, though some schools do use the audio visual aids and integrate teaching of some lessons. Largely however, even where ICT is used in the classes, it is usually as an information source and not a part of core learning process.

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