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Role of Information and Communication Technology in Education

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ABSTRACT

Information and communication technology has changed the way in almost all the fields and is playing salient role in education. Use of ICT in teaching-learning process is different from teaching in a classroom. Teachers have to be trained in such a way that they should plan, create and deliver the content using ICT tools. Integrating ICT into education seems to be necessary issue for educators and education administrators in the world. ICT tools provide more effective learning environment. Use of ICT make changes in teaching methods, learning approaches, handling and exchanging information. The purpose of this paper discusses the benefits and difficulties in use of ICT for teaching-learning process, approaches for use of ICT in education in India as well as other countries.

Key words: ICT, Active learning, Collaborative learning.

INTRODUCTION

Information and communication technology is used to create, store, transmit and exchange the information electronically in a digital form. ICT in education refers to e-learning that makes use of an information network such as the internet, an intranet or extranet, whether wholly or in part for course delivery, interaction and facilitation. Web-based learning is a subset of e learning and refers to learning using an internet browser such as the Moodle, blackboard or internet explorer. Such type of learning is known as E-Learning. This type of teaching refers to learning models that combines the face-to-face

classroom practice with e-learning solutions. For example, a teacher may facilitate student learning in class contact and uses the modular object oriented dynamic learning environment to facilitate out of class learning. Such type of teaching is known as Blended learning¹.

It is a paradigm of learning that assumes learning as a process individuals "construct" meaning or new knowledge based on their prior knowledge and experience. Educators also call it the emerging pedagogy in contrast to the long existing behaviourism view of learning. Such type of learning is known as Constructivism¹.

It is a learning environment that pays attention to knowledge, skills, attitudes, and beliefs that learners bring with them to the learning process where its impetus is derived from a paradigm of learning called constructivism. In the context of this article, it means students personal engagement to the learning task using the computer and or the internet connection. This type of learning is known as Learner- centred environment [1]. Globalization and innovations in technology have led to an increased used of ICTs in all sectors - and education is no exception. Uses of ICTs in education are widespread and are continually growing worldwide. The ICT components typically assist in

- ‘ Supplying computers, connectivity and building school computer labs
- ‘ Enabling instruction in computer programming and computer literacy
- ‘ Developing and disseminating new curricula in electronic format
- ‘ Distance learning
- ‘ Enabling better administration in the education sector, particularly through the development of education management information systems².

Benefits of ICT in Education

- ‘ Through ICT images can be easily used in teaching and improving the memory power of the student.
- ‘ Through ICT teachers can easily explain complex instructions and ensure students comprehension.
- ‘ Teachers are able to create the classes more interactive and make the lessons more enjoyable which could improve student attention and concentration³.

The use of ICTs in education contributes to a more constructivist learning and an increase in activity and greater responsibility of students. This limits the role of the teacher to supporting, advising, and coaching students rather than merely transmitting knowledge⁴. In recent years however, there has been a growing interest to know how computers and internet can best utilized to improve effectiveness and efficiency of education at all levels and in both formal and non-formal settings. As there is a shift of theories explaining

learning processes, ICTs become handmaiden for learning activities. ICTs are exerting impacts on pedagogical approaches in the classrooms. Their contribution to changes in teaching practices, school innovation, and community services is considerable⁵. Three concerns are made into consideration. Firstly, student outcomes such as higher scores in school subjects or the learning of entirely new skills needed for a developing economy. Secondly, we should consider teacher and classroom outcomes such as development of teachers' technology skills and knowledge of new pedagogic approaches as well as improved attitudes toward teaching⁶. Finally, one has to consider other outcomes such as increased innovativeness in schools and access of community members to adult education and literacy.

Traditional Pedagogy versus Emerging Pedagogy Information Society

Active learning

ICT-enhanced learning mobilizes tools for examination, calculation and analysis of information in order to provide a platform for student inquiry, analysis and construction of new information. The learners therefore, learn as they do and, whenever appropriate work on real-life problems in-depth. Moreover, ICT makes the learning less abstract and more relevant to their life situations⁷. In contrast to memorization-based or rote learning, that is the feature of traditional pedagogy; ICT-enhanced learning promotes increased learner engagement. ICT-enhanced learning can also be 'just in time' learning that the learners choose what to learn when they need.

Collaborative learning

ICT-supported learning encourages interaction and cooperation among students, teachers, and experts regardless of where they are. Apart from modelling real world interactions, ICT-supported learning provides opportunity to work with students from different cultures, thereby helping to enhance learners teaming and communication skills as well as their global awareness. It models learning done throughout the learner's lifetime by expanding the learning pace to include not just peers but also mentors and experts from different fields⁷.

Creative learning

ICT-supported learning promotes the manipulation of existing information and the creation of real-world products rather than the duplication of received information.

Integrative learning

ICT-enhanced learning promotes a thematic integrative approach to teaching and learning. This approach eliminates the artificial separation between the different disciplines and between theory and practice, which characterizes the traditional approach.

ICT-Enhanced Education for Policy and Planning

There is a common belief that ICTs have significant contributions to changes in teaching practices, school change and innovations, and community services. Thus, policy makers and project leaders should think in terms of input factors that can work together to observe the right impact of ICT in education⁸. Matching the introduction of computers with national policies and programs related to changes in curriculum, pedagogy, assessment, and teacher training is more likely to result in greater learning of students and other outcomes. OECD's international survey (2002) of upper secondary schools in 17 countries reveals computer availability for students; use of ICTs by teachers; ICTs activities as a part of student assignment; the role of ICTs in teaching and learning; staff development; co-operation with other schools and organizations; and obstacle to using ICTs in schools and found great variations among the countries with respect to the mentioned variables.

OECD's Education Committee meeting for instance endorsed a proposal for a new activity on ICT known as Policy Challenges for Education.

ICTs make curriculum implementation learner-centred with a self-learning environment that enables the student customize his/her own learning experiences. In this respect, Malaysia initiated the concept of smart school, a learning institution with objectives to foster self-assessed, self-paced, and self-directed learning through the application of ICTs. The Sri Lankan Government also runs several key initiatives connecting 92

education centres across provinces, regions and sectors to the ministry, and developing computer-training centres at 8 hundred selected schools. In Namibia, integrating ICT into education and training systems, issues of access to the local and global knowledge and information found to be important. For this, the education and training sector created the ICT policy for education to enhance the use and development of ICT for education and training. The five distinct development areas for the use of ICT mentioned in the policy are:

- a) investigation and development of appropriate ICT solutions
- b) deployment of ICT
- c) maintenance and support of ICT
- d) ICT literacy and
- e) ICT integration.

Disadvantages of use of ICT in education

- ‘ Setting up the devices can be very troublesome.
- ‘ Too expensive to afford
- ‘ Hard for teachers to use with a lack of experience using ICT tools.

ICT in Teaching

Teachers' attitude plays an important role in the teaching-learning process that utilizes computers and internet connections. Although teachers' attitude towards use of these technologies is vital, many observations reveal that teachers do not have clarity about how far technology can be beneficial for the facilitation and enhancement of learning. Of course, some teachers may have positive attitudes to the technology, but refrain from using it in teaching due to low self-efficacy, tendency to consider themselves not qualified to teach with technology.

The limitation of ICT use in education is related to student behaviour. Appropriate use of computer and the internet by students have significant positive effects on students' attitude and their achievement. Nonetheless, it is very common to observe limitations related to student behaviour. Students tend to misuse the technology for leisure time activities and have less time to learn and study.

To enhance teaching, learning, and research both from the constructivist and

instructivist theories of learning. This increases faith in role of technology in education however lies implied acceptance of technology by various commentators, either as neutral and autonomous, neutral and human controlled. It Increasing access to education

CONCLUSION

ICT is a prevailing tool for educational opportunities which can be both be prescribed and non-prescribed. The characteristic of ICT is their capability to go beyond time and space and make

it feasible to achieve learning. An example is Hughes Net Global Educations Interactive onsite learning platform which strives to characterize the future level of education which is called as Real time Interaction. With the advent of the internet and the World Wide Web, it is now possible to access unlimited amount of data and educational materials. Data in almost any subject and in diverse forms of media can be accessed from any place at different times of the day and by an unrestricted number of individuals. ICT is both driving and enabling the processes toward a knowledge-driven global economy⁹.

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