IMPACT OF ICT IN TEACHING AND LEARNING

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Abstract—Information communication technologies (ICT) at present are influencing every aspect of human life. They are playing salient roles in workplaces, business, education, and entertainment. ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems Moreover, many people recognize ICTs as catalysts for change; change in working conditions, handling and exchanging information, teaching methods, learning approaches, scientific research, and in accessing information. Therefore we conclude that regardless of all the limitations characterizing it, ICT benefits education systems to provide quality education in alignment with constructivism, which is a contemporary paradigm of learning.

Index Terms—Ship Data Network, Opnet ,QOS

I. INTRODUCTION

ICTs are making dynamic changes in society. They are influencing all aspects of life. The influences are felt more and more at educational institutions. Because ICTs provide both students and teachers with more opportunities in adapting learning and teaching to individual needs, society is, forcing educational institutions aptly respond to this technical innovation. Even though ICTs play significant roles in representing equalization strategy for developing countries, the reality of the digital divide- the gap between those who have access to, and control technology and those who do not, make a huge difference in the use of ICTs. This means, that the introduction and integration of ICTs at different levels and various types of education is the most challenging undertaking.

The uses of ICT is making major differences in the learning of students and teaching approaches. Schools in the Western World invested a lot for ICT infrastructures over the last 20 years, and students use computers more often and for a much larger range of applications. Several studies reveal that students using ICT facilities mostly show higher learning gains than those who do not use.

Furthermore, the use of ICTs in education also shifts the learning approaches. There is a common belief that 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 knowledge. The gradual progress in using computers changes from learning about computers, to learning computers, and finally to learning with computers. On the other hand, teachers' reluctance to adopt innovations need to be seen in the context of existing technology and commitments. 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 considerable. The table below presents comparison of the traditional pedagogy and the emerging pedagogy of constructivism that fits to the use of ICT (particularly the computer and internet) to increase student involvement in learning

Overview of Pedagogy in the Traditional versus Information Society:

Aspect	Traditional pedagogy	Emerging pedagogy for the information society
Active learning	Activities prescribed by teacher	Activities determined by learners
	Little variation activities	Many different activities
	Pace determined by the programme	Pace determined by learners
	Whole class instruction	Small group
Collaborative	Individual	Working in teams
	Homogenous groups	Heterogeneous groups
	Every one for him/herself	Supporting each other
Creative	Reproductive learning	Productive learning
	Apply known solutions to problems	Find new solutions to problems
Integrative	No link between theory and practice	Integrating theory and practice
	Discipline based	Thematic
	Individual teachers	Teams of teachers

BENEFITS OF ICT IN EDUCATION

ICT provides a great deal of advantage in the delivery of equitable quality education thereby providing an opportunity to improve the lives of our people. The need to use new technologies to raise the quality and efficiency of education cannot be overemphasized. It is imperative that we expose our children, parents, and teachers to ICT to improve the quality of education and technical proficiency of our human resources, thus leading to increased productivity and accelerated development. 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

• Producing people capable of working and participating in the new economies and societies arising from ICTs and related developments

• 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

LIMITATIONS OF ICT USE IN EDUCATION

ICT as a modern technology that simplifies and facilitates human activities is not only advantageous in many respects, but also has many limitations. Many people from inside and outside the education system,

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think of ICT as "Panacea" or the most important solution to school problems and improvements. However, many conditions can be considered as limitations of ICT use in education. The limitations can be categorized as teacher related, student related, and technology related. All of them potentially limit the benefits of ICT to education.

If ICT is not properly used, the disadvantage will overweight the advantage. The various literature in the area, identify the following limitations of ICT use in education.

• Computers limit student's imaginations

• Over-reliance on ICT limits students critical thinking and analytical skills

• Computer-based learning has negative physical side-effects such as vision problem

• Students tend to neglect learning resources other than the computer and internet

• Students may have less opportunity to use oral skills and handwriting

• Use of ICT may be difficult for weaker students, because they may have problems with working independently and may need more support from the teacher.

•The infrastructure challenges that may exist are absence of appropriate buildings and   rooms to house the technology, shortage of electric supply and telephone lines, and lack of   the different types of ICTs.

II.   SUMMARY AND THE WAY FORWARD

Information communication technologies are influencing all aspects of life. They are promoting changes in working conditions, handling and exchanging of information, teaching-learning approaches and so on. One area in which the impacts of ICT is significant, is education. ICTs are making major differences in the teaching approaches and the ways students are learning. ICT-enhanced learning environment facilitates active, collaborative, creative, integrative, and evaluative learning as an advantage over the traditional method. In other words, ICT is becoming more appropriate in the realization and implementation of the emerging pedagogy of constructivism that gives greater responsibility of learning for students.

What will be the way forward then? There is a consensus that the development of any country depends upon the quality of education programs offered to citizens. ICTs, despite their known limitations, are believed to be beneficial in this regard. The computer and the internet are especially useful to enhance student engagement in learning and positively impact student performance and achievement. Moreover, their usefulness is more apparent in the 21st century, where the time is an era of information rich that the conventional modes of teaching learning could hardly handle it.   Therefore, education policy makers, educators and all concerned should evaluate and recognize the roles of ICT in education in order to work for the effective functioning of this technology in their education systems.

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