

# New Functions in Higher Education with Special Reference of ICT

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## Abstract

Education is a socially oriented activity. It plays vital role in building the society. The quality education traditionally is associated with strong teachers having higher degrees. Using ICTs in education leads to centered learning in more number of students. As world is moving rapidly towards digital information, the role of ICTs in education is becoming more and more important and this importance will continue to grow and develop in 21st century. This article discusses the roles of ICTs in education. Information Communication Technologies (ICT) at present are influencing every aspect of human life. They are playing salient roles in work places, business, education, and entertainment. 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, this article discusses the roles of ICTs, the promises, limitations and key challenges of integration to education systems. Information Communication Technologies are the power that has changed many aspects of lives. The impact of ICT on each sector of the life across the past two-three decades has been enormous. The way these fields act today is different as compared to their pasts. Across the past twenty years the use of ICT has basically changed all forms of endeavour within business, governance and off-course educations. ICT has begun to have a presence but unfortunately we are lacking to achieve desired impact. This paper highlights various impacts of ICT on contemporary higher education and also discusses potential future developments.

## Keywords

Higher Education, Information Communication Technologies, Computer and Internet

## I. Introduction

ICTs are making dynamic changes in society. They are influencing all aspects of life. The influences are felt more and more at schools. Because ICTs provide both students and teachers with more opportunities in adapting learning and teaching to individual needs, society is, forcing schools aptly respond to this technical innovation. Tinio (2002), states the potentials of ICTs in increasing access and improving relevance and quality of education in developing countries. Tinio further states the potentials of ICT as follows:

ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance higher 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.

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 higher education is the most challenging undertaking. Failure to meet the challenges would mean a further widening of the knowledge gap and deepening of existing economic and social inequalities among the developed and the developing countries. Thus, the purpose of this article is to discuss the benefits of ICT use in higher education, in the enhancement of student learning and experiences of some countries in order to encourage policy makers, school administrators, and teachers pay the required attention to integrate this technology in their higher education systems.

## II. The Benefits of ICT in Higher Education

The uses of ICT is making major differences in the learning of students and teaching approaches. Students who used computer tutorials in mathematics, natural science, and social science score significantly higher on tests in these subjects. Students who used simulation software in science also scored higher. The findings also indicated that primary school students who used tutorial software in reading scored significantly higher on reading scores. Very young students who used computers to write their own stories scored significantly higher on measures of reading skill. Moreover, students who used word processors or otherwise used the computer for writing scored higher on measures of writing skill. Furthermore, the use of ICTs in higher education also shifts the learning approaches.

On the other hand, teachers' reluctance to adopt innovations need to be seen in the context of existing technology and commitments. Watson (2001) states that change or improvement can happen at schools if teachers understand themselves and understood by others. For instance, many teachers are currently not in a position to Ethiop. J. Educ. & Sc. Vol. 6 No 2 make informed judgements on ICTs to support their teaching goals. Clearly a variety of factors still do make using ICT in the curriculum problematic (Watson, 2001). Because of this, the influence of ICT did not bring revolutionary changes at schools. In recent years however, there has been a growing interest to know how computers and internet can best be utilized to improve effectiveness and efficiency of education at all levels and in both formal and nonformal 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 considerable. A research review by Kozma (2005) suggests three significant concerns of consideration regarding ICTs impact on education. Firstly, student out comes 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 teaching. Finally, one has

to consider other outcomes such as increased innovativeness in schools and access of community members to adult education and literacy. We are world leaders in ICT at schools, recognizing its vital importance to the future of all pupils. The figures show clearly the advances we have made in the field. It is an investment, not only in our children and in their lives in the 21st century, but in our country's future as well. The use of computers at an early age helps students learn ICT skills that help as tools in the education process. For example, 77% of Swiss students reported using a computer several times a week to prepare their courses and assignments. Only 3% reported never using a computer for course preparation. As indicated in the OECD (2002) document, the average number of students per computer is an indicator of students' accesses to new technologies. As some data from OECD (2002) shows, the percentage of students with access to computer varies from 25% in Italy to 90% or more in Canada, Finland, and New Zealand. Computer use also varies between students of primary and secondary schools; where the later generally having greater access. In recent years, the number of students per computer has been decreasing in the countries mentioned above.

### III. Promises of ICTs Use in Developing Countries

The World Links program is a good initiation in the form of a project, originally managed by the World Bank to place internet-connected computers in secondary schools and train teachers in Africa, Latin America, the Middle East India and Southeast Asia. The goal of the program is to improve educational outcomes, economic opportunities, and global understanding for youth using information technology and new approaches to learning. Services provided by the program include:

- Feasibility studies and consultation on connectivity solutions and telecenter management,
- Internet connectivity for secondary schools in developing countries
- School-to-school partnerships, as well as regional and global partnerships with public, private, and non-governmental organizations,
- Teacher professional development on issues of technology in the context of innovative pedagogy
- Workshops for policy makers on coordination of policies and implementation strategies With the help of the World Links program, many countries are now using ICTs as ways of providing teachers with new skills and introducing innovative pedagogies in the classroom.

On the other hand, developed countries are now making online education, smart schools, and virtual universities more of a norm. Developing countries are also fast catching. For instance, the Government of India, announced an ambitious program titled 'Vidya vahini' that is to create computer laboratories with facilities like internet access, an online library, academic services and web-casting across 60 thousand schools in the country in 2003. Vietnam has also invested to develop a computer based information network system for education called Education Network (EdNet) and improve computer facilities at educational institutions. EdNet is the country's first step towards developing a computer based information network system for education. Thailand also launched School Net, which has connected 4758 schools throughout the country. School Net Thailand is using the internet to improve the overall standard of education in the country by reducing the gap in quality of education between schools in urban and rural areas. Pakistan invested 5.18 million US dollar to provide connectivity across universities, secondary and primary schools in 2003. 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.

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

- Offer the opportunity for more studentcentred 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 teachers with new sources of information and knowledge,
- Prepare learners for the real world,
- Provide distance learners country-wide with online educational materials

Provide ICT Literate Citizens.

- Provide learners with additional resources to assist resource-based learning.
- Are 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,
- Are broadening access to quality higher 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.

### IV. Limitations of ICT Use in Higher 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, 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. 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.

On the other hand, 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.

Limitations of ICT use in higher education as related to student behaviour are as follows :-

- Computers limit students' imaginations,
- Over-reliance on ICT limits students critical thinking and analytical skills,
- Students often have only a superficial understanding of the information they download,
- Computer-based learning has negative physical side-effects

- such as vision problem,
- Students may be easily distracted from their learning and may visit unwanted sites,
  - Students tend to neglect learning resources other than the computer and internet,
  - Students tend to focus on superficial presentations and copying from the internet,
  - Students may have less opportunity to use oral skills and hand writing,
  - 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 other limitation of ICT use in education is technology related. The high cost of the technology and maintenance of the facilities, high cost of spare parts, virus attack of software and the computer, interruptions of internet connections, and poor supply of electric power are among the technology related limitations of ICT use in education.

## V. Conclusion

The integration of ICTs in higher education systems may face various challenges with respect to policy, planning, infrastructure, learning content and language, capacity building and financing. ICT-enhanced education requires clearly stated objectives, mobilization of resources and political commitment of the concerned bodies. Other challenging points at the level of policy and planning are identification of stakeholders and harmonization of efforts across different interest groups, the piloting of the chosen ICT-based model, and specification of existing sources of financing and the development of strategies for generating financial resources to support ICT use over the long term. 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.

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