ICT for Education

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Abstract: **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 ICT's as catalysts for change; change in working conditions, handling and exchanging information, teaching methods, learning approaches, scientific research, and in accessing information. ICT permeates the business environment, it underpins the success of modern corporations, and it provides governments with an efficient infrastructure. At the same time, ICT adds value to the processes of learning, and in the organization and management of learning institutions.**

One of the many challenges facing developing countries today is that of preparing their societies and governments for globalization and the information and communication revolution. Policy-makers, educationists, non-governmental organizations, academics, and ordinary citizens are increasingly concerned with the need to make their societies competitive in the emergent information economy. Globalization and innovations in technology have led to an increased use of ICTs in all sectors -and education is no exception. Uses of ICTs in education are widespread and are continually growing worldwide. It is generally believed that ICTs can empower teachers and learners, making significant contributions to learning and achievement. Over the last two decades, the rapid growth of ICT has become one of the most important topics discussed by the scholars in education. This is due to the capability of ICT in providing a dynamic and proactive teaching and learning environment. In line with the current digital era, teachers are required to integrate ICT in their daily teaching and replace their traditional methods with modern tools and facilities. The main focus of this paper is on effectiveness of ICT integration in education.

Keywords: **ICT integration, Education, Teaching and learning process**

Introduction

To accurately understand the importance of ICT in Education there is need to actually understand the meaning of ICT. ICTs stand for information and communication technologies and are defined, for the purposes of this primer, as a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. ICT permeates the business environment, it underpins the success of modern corporations, and it provides governments with an efficient infrastructure. At the same time, ICT adds value to the processes of learning, and in the organization and management of learning institutions. The Internet is a driving force for much development and innovation in both developed and developing countries. Countries must be able to benefit from technological developments. To be able to do so, a cadre of professionals has to be educated with sound ICT backgrounds, independent of specific computer platforms or software environments. Technological developments lead to changes in work and changes in the organization of work, and required competencies are therefore changing. Gaining in importance are the following competencies:

- critical thinking,
- broad competencies,
- ICT competencies enabling expert work
- ,decision-making,
- handling of dynamic situations,
- working as a member of a team, and
- Communicating effectively.

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 countries, if these are used at all, due to limited infrastructure and the attendant high costs of access. Information and communication technology (ICT) has 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.

One of UNESCO's overriding aims is to ensure that all countries, both developed and developing, have access to the best educational facilities necessary to prepare young people to play full roles in modern society and to contribute to a knowledge nation. Maintaining a capacity to advise national governments on the use of technology in schools and, in particular, on the optimal balance, given local circumstances, between ICT and older educational technologies and assisting countries in developing educational software and materials that reflect their own national and regional cultures are key components of the Organization's strategy to achieve the Education for All goals.

Moreover, different technologies are typically used in combination rather than as the sole delivery mechanism.

Education is termed as one of the basic requirements on which great nations are built. It is an investment that takes its time to pay dividends but, according to economists, education generates the highest returns when compared to any other avenues where resources can be committed. In developing countries, where a large population lives at subsistence levels, primary education is a major tool for enriching human capital. At the primary level, young minds are enlightened to accept new ideas, show creativity, develop critical thinking and above all, enable themselves to absorb surrounding information for informed decision-making at any later stage in life. In this regard, computer studies or ICT becomes immensely important.

Operational definition of terms
Information Communication Technologies (ICT) in this review article refers to the computer and internet connections used to handle and communicate information for learning purpose.
E learning: - is a learning program that makes use of an information network- such as the internet, an intranet (LAN) or extranet (WAN) whether wholly or in part, for course delivery, interaction and/or 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 (Tinio, 2002).
Blended Learning:-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 module.

The Benefits of ICT in Education
The uses of ICT is making major differences in the learning of students and teaching approaches. 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. Voogt's (2003) description on the major roles, distinguished ICTs as an object for study, an aspect of a discipline or a profession, and a medium of instruction. As a medium of instruction, ICTs fit to realize and implement the emerging pedagogy of constructivism. ICTs are exerting impacts on pedagogical approaches in the classrooms. Their contribution to changes in teaching practices, school innovation, and community services is considerable.
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 situations. 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 modeling 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 fields.
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.
Evaluative learning:- ICT-enhanced learning is student-directed and diagnostic.
Unlike static, text or print-based education, ICT-enhanced learning recognizes the presence of different learning pathways to explore and discover rather than merely listen and remember. The discussion above clearly elaborates the role of ICTs in facilitating the pedagogy of schools in the information society.

The use of ICTs to improve the quality of education
Improving the quality of education and training is a critical issue, particularly at a time of educational expansion. ICTs can enhance the quality of education in several ways:
☐ by increasing learner motivation and engagement,
☐ by facilitating the acquisition of basic skills, and
☐ by enhancing teacher training. ICTs are also transformational tools which when used appropriately, can promote the shift to a learner-centered environment. ICTs such as videos, television and multimedia computer software that combine text, sound and colorful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process. The teachers strongly felt that the visual aural combination if integrated judiciously with the textbook and syllabus, can work wonders in getting across abstract concepts and logics to the children in a short span of time.
The potential of each technology varies according to how it is used. Haddad and Draxler identify at least five levels of technology use in education:
a) Presentation
b) Demonstration
c) Drill & Practice
d) Interaction
e) Collaboration

Limitations of ICT use in education
•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.

Summary and the Conclusions:
This review article attempts to answer questions on the roles of ICTs in education, existing promises, limitations and the challenges of its integration in education systems. Information communication technologies are influencing all aspects of life including education. 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. 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 21stcentury, where the time is an era of information rich that the conventional modes of teaching learning could hardly handle it. The reviewer of this article strongly recommends the mainstreaming of ICT utilization (particularly the computer and internet) in education systems at levels, for they benefit curriculum implementation and enhanced student learning. 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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