

Information and Communication Technology (ICT) and Education

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Abstract

The role of Information and Communication Technology (ICT) in Education can never be over emphasized, as the general standard of education continues to deteriorate; there is a need to look for ways of improving the learning system in the Nigeria educational system. This paper dwelt on the meaning of information and communication technology and education, explain methods and resources used by information and communication technology (ICT) in education. The paper also revealed the benefits and challenges of information and communication technology (ICT) in the educational system of Nigeria. The authors suggested some recommendations for up-lifting the standard of education in Nigeria.

Keywords: ICT, Education, E-learning, Blended learning, Technophobia

1. Introduction

Information and Communication Technology (ICT) can be defined as a "diverse set of technological tools and resources used to communicate, and create, disseminate, store and manage information" (Blurton 2005). This technology includes computers, the internet, broadcasting technologies (Radio and Television) and telephony. Technological change is a process that has accelerated over the past fifteen years and has created a new national economy "powered by technology, fueled by information and driven by knowledge" (U. S Dept. 2005).

Education is regarded as a corporate teaching-learning process of preparing an individual from birth and all through life, for happy and useful living in his society within the context of his culture and resources (Oyekan, 1994). Education has, therefore, been considered as a bridge between every child and his/her future and also as an activity that promises economic well-being to the child and prosperity to his/her society at large. Education should prepare functional people who are fully integrated with their community for earning gainful living and promoting rural transformation through peaceful co-existence.

Concerned over educational relevance and equality co-exist with the imperative of expanding educational opportunities to those made most vulnerable (low-income group, females and unskilled workers) by the national economy reforms. These reforms have put pressure on all groups to constantly acquire and apply new skills. The international labour organization defines the requirements for education and training in the new global economy simply as "Basic Education for All", "Core work skill for All", "and lifelong learning for All" (ILO, 2006).

Information and communication technologies which include Radio and Television, as all as newer digital technologies such as computers and internet have been touted as exponentially powerful enabling tools for educational change and reforms. When used appropriately, different ICTs are said to help expand access to education, strengthen, the relevance of education to the increasing digital workplace, and raise educational quality by, among others, helping to make teaching and learning an engaging, active process connected to real life.

In recent years, there has been a groundswell of interest on how computers and the internet can best be harnessed to improve the efficiency and effectiveness of education at all levels (Informal and non-formal education). But ICTs are more than just these technologies, older technologies such as the telephone, Radio and Television, although are new given less attention, have a longer and richer history as instructional tools (Cuban, 1986). For example television and radio have for more than forty years been used for open and distance learning, although print media remains the cheapest, most accessible and therefore, most dominant delivery mechanism in both developed and developing countries (Potashnik, 2006) Nigeria inclusive. The use of computers and the internet is still in its infancy in developing countries, if those are used at all due to limited infrastructure and the high cost of accessibility (Tinio, 2006). Also, different technologies are typically used in combination rather than as the sole delivery mechanism. Nigeria Open University for

instance uses radio broadcasts, computers and the internet technologies to facilitate the sharing of information and provide educational opportunities for both rural and urban communities in Nigeria.

2. Methods Used in ICTs Learning

The following methods are used in ICTs learning in developing and developed countries.

3. E-Learning

E-learning comprises of all forms of electronically supported learning and teaching which are procedural in character and aim to affect the construction of knowledge with reference to individual experience, practice and knowledge of the learner. E-learning is most commonly associated with higher education and corporate training. E-learning encompasses learning at all levels, both formal and non-formal education that uses information network. Examples of such networks are: internet, an intranet (LAN) and extranet (WAN) whether wholly or in part, for course delivery, interaction and facilitation.(Salawudeen,2010). E-learning is also refer by some people as online learning. Web-base learning is a subset of e-learning and refers to learning using an internet browser (Mozilla firebox, internet explorer).

4. Distance Learning

Distance learning (distance education), is a field of education using educational strategies that take advantage of technology to deliver lessons to students without ever requiring them to be in a traditional educational setting such as classroom. The rationale behind the running of distance learning programmes is that students could learn from their chosen locations which could be thousands of mile away. It is therefore expected that distance learning would demand much of information and communication technologies..

5. Blended Learning

This is another term that is gaining popularity; it is referred to as learning models that combined traditional classroom practice with e-learning solutions. For example, students in a traditional classroom can be assigned both print based and online materials; they can also have online sessions with their teacher through charts. BLENDED learning was introduced by the recognition that not all learning is best achieved in an electronically mediated environment, particularly the learning where the instructor is physically present. Instead , consideration need be given to the subject matter, the learning objectives and outcomes, the characteristic instructional and delivery methods(Tinio,2006).

6. Classification of ICT Resources In Education

The following are the ICTs resources used in education:

1. Instructional Software: these are software that fulfill the following roles:
 - a. Tutorial Activities: Here, the course was teaches directly. It enables the students to learn the topic without any help or other materials from outside the courseware. This kind of software will require the learner to be able to read and do independent study. Even with this courseware, the human teacher can still assist slow learner.
 - b. Drill and Practice Activities: The software provides exercises in which students work examples, one at a time and receive feedback on their corrections. Drill and practice software can help save the teacher time as students work on their own.
2. Multimedia and Hypermedia Software:

Multimedia, according to Roblyer (2003, 164) simply means "Multiple Media" or "a combination of media". The media can be still pictures, sand, motion, video, animation, and/or text items combined in product whose purpose is to communicate information. Hypermedia, on the other hand, is "linked media". In this system, items of information from all over the world are logically connected with hypertext link.

7. Benefits of ICT in Education

The uses of ICT in education can never be over emphasized. The use of ICTs can help students to ask questions, predict hypothesis, obscure, measure, record, interpret their results and evaluate their performances in the learning process. The following are the uses of ICTs to education.

- To support conventional classroom work: The (ICTs) is potentially a powerful tool for extending educational opportunities, formal and non-formal to remote areas. The teacher could ask his students to use ICT facilities in school work.
- Electronic teaching materials such as books, journals, newspapers, magazines etc. can be exchanged through ICT.
- The computer can help in the design and development of learning materials. So much material can be downloaded from the internet. Such material must however be adapted to suit the specified instructional objectives.
- The virtual library "stock" electronic versions of books, journal, etc. through ICT, we can access, store, analyze information in electronic form.
- ICT is particularly useful in research as it gives access to a world of resources, especially in electronic form.
- ICT can play a key role in administration. Student's data, personnel administration, purchasing and supplies, advertisement, etc. can be handled with ease using ICT.

8. Challenges of ICT in Nigeria Education

Despite the keenness by institutions of higher learning to effectively use ICT in educational programs, they are confronted with enormous problems that may have impeded its proper implementation. Some of the problems are:

1. Inequality of access to the technology itself by all the students. The cost of Personal Computer (PC) and laptop are still very higher in Nigeria considering the income level of an average worker in the country. Few students that are privileged to have a PC/Laptop are not connected to the internet as this does attract cost which cannot afford.
2. Technophobia: most of the students have no computer education background, hence they are afraid of operating one, some go to the extent of hiring expert at a cost to fill their admission, registration and other documents meant for them to fill online. However, the very few who have access to the computer do not know how to use it and maximize its usage.
3. School Curriculum: most of the students admitted have no Information Technology/Computer Education knowledge because it was not entrenched in the curriculum at their elementary and secondary education level. Not until recently when computer education is being introduced at elementary level and it is not yet a compulsory subject at the secondary level of our education.
4. Attitude of students: ICT give room to independent learning and most students are too reluctant to take responsibility for their own learning, but they preferred to be spoon-fed at all times.

9. Conclusion

ICTs as a global tool for delivery effective teaching and learning services in the educational system particularly Nigeria. There is the need for the involvement of governments, individuals, corporate bodies and private institutions at all levels to improve the infrastructural facilities and educate the general public in the importance of ICTs in the educational system of Nigeria. As such, the accessibility of educational resources will be at the hand of the learner at any point in time there by promoting the general quality and standard of education particularly in Nigeria.

10. Recommendation

The following were recommendations made to help Nigeria in working towards better integration and use of information and communication technology to enhance the educational sector of the nation.

1. Government needs to ensure that the cost of telecommunications, hardware and software are cheap, which will involve examining existing taxes and impact duties.
2. Government should provide also the necessary social amenities, infrastructure and constant supply of

- electricity for easy take off the ICT in education.
3. Awareness campaign should be made on individuals, parents, schools and corporate bodies on the benefit of ICTs to education.
 4. Skilled manpower and professionals should be employed and in charge of all ICTs facility in educational setting of the country.
 5. Government should build more structures for ICT centres and make it compulsory for school at various level of education in Nigeria.

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