



The needs for the utilization of information and communication technology (ICT) for effective teaching and learning at senior secondary schools in Nigeria

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Abstract

This paper addressed the issue on the utilization of Information and Communication Technology in Education, the need became necessary because of the growing concern by all stakeholders in education, that the position of ICT in teaching and learning is nationally acceptable. The study explains the concept of ICT, importance of ICT in Education, classification of ICT in Education, Purpose of Teacher Education, qualities of a good Teacher. It further provides guide lines for effective utilization of ICT in teaching and learning at Senior Secondary Schools and Challenges of ICT in Nigeria were also discussed. Recommendations on how to enhance teaching and learning was also forward.

Keywords: Communication technology, ICT, stakeholders in education

Introduction

The use of technology for teaching is one of the critical issues in education that is wide spread in all institutions of learning (Afshari, *et al.* 2009) ^[2]. Globally, advances in technology have initiated an emphasis towards the use of information and communication technology (ICT) in educational system for delivery of quality education (Gabriel, *et al.* 2014) ^[5]. This advancement which ICT resources offers to educational institutions, can be seen through accessibility to quality resource material and it's utilization in instructional delivery.

The effective utilization of ICT will be of benefit when teachers are competent in the use of these resource materials to enhance the teaching and learning process (Gabrial, *et al.* 2014). It is imperative to note that in this era of technological advancement, ICT facilities are necessary tools that are required for training of modern teachers. ICT is considered as one of the major tool for enhancing the educational system. Therefore, the use of ICT in teacher education institutions deserves to be given importance and priority for its role in developing prospective teachers in Nigeria (Onwuagboke, *et al.* 2014) ^[8].

In the preparation of teachers at all levels of our educational system in Nigeria, ICT has a lot to offer in this direction. However, the usage of ICT in facilitating teacher education is still a myriad in Nigeria as many of the teachers are not ICT literate and those under training in Colleges of Education, Institutes of Education and Faculties of Education in Nigerian Universities are not fully exposed to the use of ICT in the acquisition of skills and practical teaching (Owolabi, *et al.* 2013). Nigeria as a developing nation is getting stronger by the day but one important index of strength is the quality of education provided her citizenry (Seweje, 2006). Today, in most developed countries, nearly every aspect of human life including education is ICT driven. The education sector in Nigeria still lags behind in this aspect of technology; however, concerted efforts are being channeled towards this direction by the government in order to ensure the integration of ICT in most of the government owned institutions.

Information and Communication Technology (ICT)

Information and Communication Technology (ICT) is a widely defined term that has several meanings across different sectors. Though, essentially, it is used as an umbrella term to refer to the use of communication devices (such as radio and cellular devices, satellite devices and channels, computers, among others) and utilities (programs) to manage information (acquisition, dissemination, processing, storage and retrieval) (Yusuf, 2005) ^[12].

Bamiro, (2011) ^[3], defined ICT as the use of electronic devices for sending-out, storing and receiving information. Information and Communication Technology is an umbrella that involves any communication application or devices, encompassing; television, radio, satellite systems, cellular phones, computer hardware and software. Information is the fact about a person, group, event, situation, company or country. Communication is the process of passing information from one person or group to one another. When the communication process makes use of devices and systems which transmit electronic or optical signals over long distances, it is more appropriately referred to as telecommunications. The methods and devices used in gathering information and communicating it are all included in the ICT. The ICT process has changed social relationships between mankind for the better. These definitions therefore encompass the full range of ICT from Radio, TV to telephones, computers and the internet (Adelekan, 2008) ^[1].

Heeks (1999) ^[6], in his own contribution defined ICTs as electronic devices for computing, processing, storing and communicating information. He categorized these devices into; digital information (which comprises of computer hardware, software and networks) and intermediate technology (which is based on analogue information waves like radio, T.V and telephones). Okpara (2004) ^[9] sees ICT as the science of extracting, collating, storing, processing, utilizing and disseminating data.

Therefore, teachers need to be confident and competent in using various ICT tools to build their trust in the technology. Without teacher's competency and mastery skills of ICT

which is appropriate to their needs, ICT could not be put into good use for instructional delivery. The intention of government is to upgrade the quality of ICT skills among schools especially schools in the remote areas. Furthermore, it is also trying to narrow down the gaps of ICT capabilities both in terms of quantity and quality between urban, rural and remote areas in the whole nation. In this regard, this could enhance the quality of teaching and learning, once the quality and quantity of ICT capabilities is being improved.

Importance of ICT in Education

The use of ICT increases the effectiveness of teaching and learning. This can help to improve and develop the quality of education by providing curricular support in difficult subject areas. To achieve these objectives, teachers need to be involved in collaborative projects and development of intervention change strategies, which would include teaching partnerships with ICT as a tool. According to Zhao and Cziko ((2001), three conditions are necessary for teachers to introduce ICT into their classrooms; teachers should believe in the effectiveness of technology, teachers should believe that the use of technology will not cause any disturbances, and finally teachers should believe that they have control over technology.

The use of ICT in educational settings, by itself acts as a catalyst for change in this domain. ICTs by their very nature are tools that encourage and support independent learning. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools (Reeves & Jonassen, 1996). The use of ICT arouses students` interest in the classroom. It is a common belief that when interest is aroused, students are more curious and the learning becomes better and quicker. The use of ICT makes learning clearer, more interesting and easier for learners to assimilate knowledge.

Classification of ICT in Education

The ICT are classified in to three categories:

1. Visual Materials: Is the teaching and learning devices that could be seen. It involves the use of visual perception in the development of skills and understanding which includes:

- a. Three dimensional materials like objects, models and specimen.
- b. Printed materials like textbooks, workbook, journals, newspapers, magazine newsletters etc.
- c. Boards like chalk boards, bulletin boards, flannel or flat boards.
- d. Still pictures; like projected (slides, filmstrip, overhead projector and opaque projections)-Non projected (photographs, illustration)
- e. Graphics: Charts, Graphs, Maps, Globes, Posters and Diagrams.

2. Audio Materials: Is the teaching and learning devices that mostly appeal to the sense of hearing or Convey message through sound productions and they are as follows:

- Radio,
- Record Players and
- Tape recorder.

3. Audio-Visual Materials: Is an instrument or gadget that aid teaching through the sense of hearing and seeing which includes

- Motion pictures,
- Television,
- Computer and
- Videos tape/Cassette.

Purpose of Teacher Education

The purpose of teacher education was spelt out by the National Policy on Education (2014)^[7] it includes:

1. To produce highly motivated, conscientious and efficient classroom teachers for all levels of our educational system;
2. To encourage further the spirit of inquiry and activity in teachers;
3. To help teachers to fit into the social life of the community and society at large and to enhance their commitment to national objectives;
4. To provide teachers with the intellectual and professional background adequate for their assignment and to make them adaptable to any changing situation not only in the life of their country, but in the wider world;
5. To enhance teachers` commitment to the teaching profession.

Qualities of a Good Teacher

A teacher is a person in charge of aiding students to learn. He is a curriculum planner, developer, evaluator and a key factor in its implementation. A Good teacher according to Saidu (2008)^[11] can make a society better through the initiation of permanent change in the behaviour of students. The hope of any nation as a matter of fact is on the youths for the teacher to actually guide students to learn at whatever level of education, he should have certain qualities of teaching in teaching profession. Many qualities have been forwarded by educationists and those qualities are considered as absolutely essentials for a teacher

- a. **Individual attention given to students:** A teacher as a mentor supposed to be around for students to seek solution to their problems in learning. This can be during school hours and after school hours. Attention should be provided to students at all time for effective teaching and learning. A professional teacher should arrange remedial classes for the backward students despite the existence of individual differences. Consultation can reduce some learning problems. Damme (2001)^[4] observes that teachers take the position of parents in the school. In view of this, they should ready to provide all round development of the students for complete economic empowerment.
- b. **Have the love of the profession:** Commitment in teaching requires the love for the profession. A good teacher should have love for his profession though taking teaching as “work” not as “job”. A good teacher should go about his teaching activities to please himself and others.
- c. **Be enthusiastic and sincere:** People often say that the reward of a teacher is in heaven not on earth. This is discouraging to some people and make them run away from the profession. Saidu (2008)^[11] observes that trained teacher supposed to be proud of the profession as it is the case in medicine, law and engineering. A lot of people feel the salary is small. A good teacher therefore should be committed, enthusiastic and sincere. This brings about sound teaching in teacher education.

- d. Mastery of the subject matter:** A good teacher should have a sound mastery of the subject matter. Saidu (2008)^[11] observes that a sound mastery of the subject can make the teacher to manage his or her classroom well. He went further to say that a good teacher should have knowledge of other fields in addition to his special field of knowledge.
- e. Patience:** Despite the fact that, teachers are the role model to the learners may find his learners have forgotten what he expected than to remember. He must patiently go over the lesson again. This sometimes comes as a result of proper evaluation of the lesson. Saidu (2008)^[11] observes that evaluation is a process of checking the strengths and weaknesses of a lesson, to enable the teacher repeat the lesson or move to the next topic in the syllabus. A good teacher should be tolerant and patient enough to handle slow learners and other individual differences which exist in teaching and learning process. He must learn to help the slow learners in his or her classroom. Many useful habits are learnt slowly, and the teacher must be patient with the students who is making the necessary effort. Such a teacher should be able to meet an angry parent, college and administrator with patience and understanding.
- f. Honesty:** Teachers are trained to be honest, kind and just in teaching profession. Student will not trust the teacher whom they found to be dishonest. A good teacher should therefore have favorites in his class. He should not be bias in anyway. He should not make any student feel unpopular within and outside the school environment when correcting a student, a teacher should make that student feel that the teacher is helping him. A good teacher must fulfill promises made for the students to respect him. In this manner the students will look at the teacher with respect and honor.
- g. Have a sound command of language:** A good teacher is a good communicator. Sound command of language can help the teacher to control his classroom for effective teaching and learning. The teacher's voice should be pleasing, clear and audible enough to the class. The teacher who shouts very much tries himself and his students easily. The purpose of communication in teaching is to appropriately communicate the content of the lesson. It is to pass a message correctly from one person to another correctly. Communication in teaching regardless of the language use, has to do with conveying ideas clearly and correctly.
- h. Have the knowledge of his learners:** A good trained teacher should know his students as individuals and as the class is under his control. This is the reason why; it is necessary for the teacher to study his student very well. This can help him take proper care of individual differences that exist in every classroom. Students differ particularly in their biological make up, environment, culture, home background, educational background and mental ability. Teachers can teach the class they know better than the class they do not know.
- i. Peasant appearance:** A good teacher should dress well to please himself and the profession as well as the

society. It is not necessary to wear the most costly material to be well dressed at all.

- j. Have hope:** A good teacher should have confidence in himself and students he should also have confidence in the parents of the students and fellow teachers within and outside the school.
- k. Morally sound:** A good teacher who supposed to take the position of parents in the school should have a sound moral character. Paul (2004) observes that sound moral character can help the teacher to maintain a good classroom management for effective learning.
- l. Should be humble:** A good teacher should recognize his limitations and failings. He should not force himself on people or force people to recognize their greatness.
- m. Loyalty:** A good teacher must loyal to school authority. He should obey the rules and regulations of the school and profession for peaceful co-existence. The teacher should not only expect loyalty from his students but should be loyal to them as well. He should also be seen by the students to be loyal to his own superior too.

ICT Utilization and Teacher Education

The following are some of the tools when utilized will provide quality Teacher Education

- 1. Projector:** Is one of the ICT tools that are utilized by teacher education to display images in classroom situation. As such, it will assist teachers in conveying or transforming teaching and learning. It could be used in enhancing teacher and students' interactions. Information and Communication Technology brought changes and new innovative ways for the production of quality teacher, ICT tools such as internet, phone and other vital devices (Damme, 2001)^[4]. Projector is another ICT tool which teachers utilized in the sharing of practical classroom. It is used in transforming of learning experiences that develop new skills and new methodologies that will suite the classroom activities in stages, especially in urban and rural schools in some developing countries such as Nigeria.
- 2. Internet:** Is a global system of interconnected networks; it connects two or more computers share the same protocol. Competent teachers utilized networks in promoting and enhancing free flow of information using available network materials; they also used internet in utilizing journals and researches. It is a global network brings together information through utilizing, retrieving and disseminating information. Internet is used for gathering information that has to do with satellites, telephones etc.
- 3. Computer:** Is an electronic device that accepts, processes, stores data and retrieves information as an output. Teachers utilized computers to access information via net to retrieve relevant documents, used to organize conferences and lecture notes etc. It is also used to access educational software. Teachers use computer to aid learning experiences when they are used for motion pictures and result computation or analysis (Damme, 2001)^[4].

- 4. Cell phone:** Is another vital ICT tool that can be used by the teachers to utilize internet in promoting collaborative teaching and learning activities. Teachers use cellphones to connect in tethering and portable hotspot to utilize network in accessing information as individual learning to promote competency. Furthermore, in terms of utilization of ICT tool in facilitating anything you think cellphone will be useful. In learning independently, (autonomous learning) cellphone will help teachers/students to access, manipulate, modify, store and retrieve information (wheeler, 2000)^[13] etc.

Effect of ICT in Teaching and learning

ICT has the following effects on teaching and learning process, which include:

1. It can be used to train students in skills which they will need in further education and as an ongoing learning process throughout the rest of their lives and for their future jobs, e.g., word processing, email communication etc.
2. It can provide access to information and communication outside the classroom e.g., via the internet.
3. It can be used to support teacher development via external networks.
4. It can support and potentially transform the learning and teaching process.

Challenges of Information and Communication Technology in Nigeria

Some of the problems of ICT in Nigeria are

- 1. Poor governance and corruption:** Our leaders have not being able to do much on the high level of corruption in the country and this is affecting the ICT in the country particularly in the present day government have not being able to do much in internet fraud.
- 2. Inadequate competent manpower:** Competent manpower in the country are not enough to handle ICT. Also, some drift out of the country (brain drain) in search of greener pasture in overseas countries have negatively affected ICT usage and operations in the country.
- 3. Poor funding and utilization of ICT equipment:** The problem of poor funding and bad utilization of fund can be seen in the light of government and NGO's not providing adequate money to purchase necessary equipment and gadgets needed to pursue education in Nigeria.
- 4. Poor and erratic power supply:** The epileptic and sinusoidal nature of the power supply has being a great and concurrent problem affecting the ICT usage in Nigeria.

Conclusion

The Paper explained the concept of ICT, Importance of ICT in education, Classification, Purpose of Teacher Education, Qualities of a good Teacher and its application in teaching and learning at Senior Secondary Schools, some recommendations were forwarded.

Recommendations

The following were put forward

1. Government should ensure all the teachers in Senior Secondary Schools Undergo NCE programme and above.
2. Colleges of education must ensure that teachers in training are encouraged to use ICT in teaching all the subjects in Secondary Schools.
3. The schools should provide extra lesson for practical aspect for the utilization of ICT.
4. Appropriate supervision should be ensure on teachers by the government.

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