ADOPTION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN THE IMPLEMENTATION OF PRIMARY EDUCATION PROGRAMMES IN NIGERIA

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Abstract

Information Communication Technology (ICT) has become a tool that is being globally used in almost all areas of human endeavour – medicine, agriculture, banking, engineering and education. In Nigeria however, its application to education especially in the area of pedagogy is still low despite the various ways through which its adoption can help improve classroom instruction especially in primary schools. This paper therefore examines the roles that ICT can play in the delivery of quality instruction at the primary education level. It also examines the challenges faced by the adoption of ICT to this level of education. Adequate funding of primary schools and enabling primary school teachers to be ICT compliance in the teaching learning situation are some of the recommendations preferred.

Introduction

The quality of learning received by learners hinges largely on the correct utilization of instructional resources during the learning process. One of the most recent breakthroughs in the field of education is the application of ICT to education especially in the area of methodology. Nwidum (2006) noted that with the application of ICT, the educational researcher is not only able to manipulate time and distance through the mere touch of a button, he can also acquire and impart knowledge easier, faster and with greater enthusiasm than was the case previously. With the advent of ICT, the teacher is no more the sole dispenser of knowledge and the textbook is not the only source of getting information. Doug and Mike (2001) noted that internet and advanced networking technologies and other advance form of information technology are used in schools.

Developed and developing nations of the world have attested to the fact that ICT has become a central focus for the educational policies, for use and integration in our school curriculum, yet Nigerian educational system has not adequately exposed students, teachers and institutions of learning to the realities of ICT tools and skills that would prepare them to face the challenges of the global world of internet and knowledge sharing within the shortest possible time (Adebayo, 2008). While in some countries the use of Information Technology (IT) in instruction has gone beyond the use of basic software to include some complex multimedia technologies, the instructional application of IT in Nigeria is still at a very low level.

Also, while commenting on the application of ICT to education in Nigeria, Adegun (2007) said that presently in Nigeria, the use of e-learning in the educational sector is still at rudimentary stage. The education system is still characterized by the formal education classroom based instruction where the teacher and the students are physically present at the same time and the same place.

In Nigerian primary schools, the teacher still uses the traditional method of learning in addition to some manual instructional materials for teaching. For Nigerian children to be able to stand shoulder to shoulder with their counterparts all over the world, the opportunity offered by ICT in the area of teaching and learning must be utilized in Nigeria.

Information and Communication Technology (ICT)

Information and communication technology according to Rahman (2002) is the technology of creation, processing, storage, retrieval and transmission of data and information, including telecommunications, satellite technologies, electrical and electronic (hard ware) and electronic computing (software), the internet and Global Systems of Mobile Communication (GSM). Information and Communication Technology is categorized into two-the low technology media and the high technology media (Ameh, 1991). The high technology media include the computer internet, electronic mail (e-mail), electronic bulletin boards, telephone, teleconferencing, the world wide websites (www). Each of these or a combination of some of them could be used by both the teachers and learners in getting access to knowledge anywhere in the world.

Bamidele (2006) defined ICT as that which encompasses a range of 'new' technologies and their application including all aspects of the use of computers, microelectronic devices, satellite and communication technology. ICT, therefore uses modern day technology devices which are essentially computers and relevant software packages to store and retrieve information needed in institutions, corporations and organizations.

Griffit and Smith (1994) defined "information superhighway' as a "system that involves telecommunication infrastructure that will link homes, businesses, schools, hospitals and libraries to one another and to a vast array of electronic information resources". It also involves using database of information typically of bibliographic, books, achieves and many internet related database (Bello, 2006)

While explaining the meaning of ICT, Nworgu and Oyin (2006) stated that all computer based information systems or fasties are referred to as information technology. They further explained that information technology is a set of tools that helps you work with information and perform task related to information processing. ICT is a new way of storing, processing and transmitting information through electronics and telecommunications.

Information and Communication Technology and Education

Egwin (2006) stated that although many definitions of education abound, two themes have emerged as the most dominant among the schools of thought. Education, whether formal or informal, can be defined broadly or narrowly. Dike (1995) reported that education in the broad meaning "is the equivalent of what the anthropologists, refer to as enculturation, while its narrower sense, it is associated especially with formal programmes and schooling". While viewing education from a broader perspective, the Encyclopedia American (1979) reported that "education is any process by which an individual gains knowledge or insight, or develops attitudes or skills". Also looking at education from the broader perspective, Oyekan (1994) defined education as a cooperative teaching-learning process of preparing an individual from birth and all through his or her life, for happy and useful living in the society within the content of his or her culture and recourses. According to him, the major features of education include:

(i) total development of individual's potential or talents;
(ii) preparation for happy and useful living in the society; and
(iii) life-long learning from birth and all through an individual entire life.

Explaining education from the narrower perspective, Egwin (2006) reiterated that education is only associated with formal instruction, schooling or training given to people in order to prepare them for the challenges of life. Findings of educational psychologists have confirmed the arguments of educational reformers that effective education must focus on the learner rather than the teacher or the

content. The learner-centered method of teaching has become the most popular in the contemporary educational system.

It is therefore important that the learner does not rely on the teacher and textbook alone in search of knowledge and information. Egwin (2006) noted that the teacher also needs to be acquitted with the widening spectrum of multimedia or non-book information sources in order to retain his respect and remain relevant in the emerging learner-centred system. In this situation, the use of ICT in the contemporary method of education becomes unavoidable.

Information and Communication Technology and Primary Education

Primary education remains the most popular level of education in Nigeria and other parts of the world. This is because it is available everywhere in both the developed and developing countries, in rural and urban areas. It is therefore the most sought and most accessible level of education anywhere in the world. (Akinbote, Oduolowu and Lawal, 2001).

Primary education according to the National Policy on Education (NPE 2004 Revised Edition) is the education given in an educational institution for children aged 6 to 11+. Primary education is the bedrock of the educational ladder. It builds and gives the educational systems hopes and solid foundation for its aspiration and goals to the society. Thus, primary education is usually referred to as the key to success or failure of whole system of education (NPE, 2004). The Federal Government of Nigeria acknowledged this basic fact and subsequently identified certain objectives of this level of education in order to ensure that the foundation is firmly laid. These objective are:

(i) the inculcation of permanent literacy and numeracy and ability to communicate effectively;
(ii) the laying down of sound basis for scientific and reflective thinking;
(iii) citizenship education as a basis for effective participation in and contribution to the life of the society;
(iv) character and moral training and the development of sound attitudes;
(v) developing in the child the ability to adapt to his changing environment;
(vi) giving the child opportunities for developing manipulative skills that will enable him function effectively in the society within the limits of his capacity; and
(vii) providing for trades and crafts of the locality (NPE, 2004).

In achieving the above stated objectives in the contemporary world, the application of ICT to teaching and learning at this level becomes expedient. ICT has been discovered to have positive effect on instructional process, on basic and advanced skills. Kosakwoski (2005) itemized some of the benefits of ICT as a learning and teaching resources as follows:

(i) helps to present information in many forms;
(ii) makes learners more confident in the learning process;
(iii) makes students become independent learners and good beginners;
(iv) helps to increase students' writing skills;
(v) gives rise to greater problems solving and critical thinking;
(vi) develops in the students the spirit to interact with their fellow students; and
(vii) helps students to work collaboratively.

The above benefits of ICT clearly reveal that the use of ICT in primary schools can help learners to be motivated to learn and build self confidence especially when they are allowed to participate actively in the learning process.

ICT can play the role of a patient teacher. It consistently works at the learner's pace, assisting him to acquire sets of information, skills, and facts. It can be used to present drills and practice to

primary school pupils and through this, each pupil learns at his or her own pace. Ojo (2005) reiterated that the teacher can take advantage of the dynamism of ICT to demonstrate some difficult concepts, theories and principles. This will give meaning to his classroom instruction and thus enhance his teaching and make his class presentation an exciting one.

One of the methods of teaching pupils in primary school is the activity method. Akinbote, Oduolowu and Lawal (2001) described activity method of teaching as a set of strategies that involves pupils in learning by doing things that are for the pupils and meaningfully related to the topic under study. The method emphasizes on the learner actively doing something. ICT can help the teacher to make use of this method when teaching primary school children.

Effective use of ICT in the teaching-learning process at the primary school will enable the teacher to select the most appropriate materials relevant for the chosen topic and this will enhance the utilization of the chosen materials to the advantage of both the teacher and the learners.

Describing the impact of ICT in teaching and learning in elementary schools, Gregoire, Bracewell and Laferrier (1996) submitted that ICT can perform the following functions:

(i) stimulate the development of intellectual skills in the learners;
(ii) contribute immensely to the ways learners acquire knowledge, skills and attitudes;
(iii) spur spontaneous interest in learners more than the traditional approaches;
(iv) enable learners to concentrate better than in the traditional setting;
(v) spur a research spirit within learners; and
(vi) provide collaborative learning.

The use of ICT in pedagogy in primary school is not only beneficial to the learners, it also assist teachers in a number of ways. Ojo (2005) identified some importance of ICT in pedagogy with respect to teachers as follows:

(i) it allows the teachers to avail themselves of new information sources;
(ii) It facilitates collaboration among teachers;
(iii) ICT used appropriately result in the teacher playing the role of a guide or a mentor who interacts with students; and
(iv) it facilitates the use of more and more frequent formative assessment.

In addition to the above stated used of ICT, it could also be used in the preparation of lesson plan, writing of pupils report, storage of data and analysis of students' achievement.

Given the important role that ICT can play in teaching and learning in primary schools, it is imperative for the teachers that are currently in the schools to undergo in service training on the use of ICT in schools because one of the challenges faced by the use of ICT in primary school in Nigeria is lack of computer literate teachers and ICT experts in schools.

Challenges of Adoption of ICT to Primary Education Programme in Nigeria

Inspite of the numerous gains of ICT in instructional processes in Nigeria and the clamours for its full introduction and utilization in our school system, there are still many factors militating against its use. Some of these factors are discussed below:

Erratic Power Supply: Power supply all over the country is below the meaningful level inspite of the huge investment successive government have put into the power sector. Yussuf (2006) submitted that irregular power supply in the country is a major obstacle to the usage of ICT in all spheres of the economy. Another power related problem is the fact that many rural areas in Nigeria where primary

schools are located are not connected to the national grid. Since ICT is electricity driven, it therefore becomes difficult for schools to use it as a result of power related problem.

Poor Funding of Education: All levels of education in Nigeria are generally underfunded. Therefore, available funds are used to solve more urgent and important needs of the schools thereby making ICT related matters to suffer.

Inadequate Skilled Manpower: There are inadequate manpower to manage the available systems in schools. Commenting on this, Oyebaniji (2003) submitted that lack of skilled manpower to manage available system and facilities for ICT hinders its use in schools. Kwache (2007) also remarked that most institutions lack computer literate teachers and ICT experts that would support and manage the internet process. In a study conducted by Ajayi and Ekundayo (2009) on the application of ICT in Nigerian secondary schools, it was discovered that most of the schools sampled lack computer literate teachers. This situation is not unconnected with the non-inclusion of ICT in teacher training programmes in Nigeria. Teachers in the 21st century classroom need to be kept abreast with all the electronic gadgets necessary for efficient classroom interaction.

Inadequate Policy Formulation and Implementation: Nwidum (2006) observed that in the Nigerian context, ICT appears to be more workable in such fields as engineering, medicine and agriculture than in education. This scenario is responsible for lack of a well articulated educational policy which makes it impossible to use projected media like overhead projectors to teach in the nursery, primary and post-primary schools.

Attitudes of Teachers to Innovations: Attitudes of teachers especially at the primary school level to innovative and technology based teaching is not encouraging. Many of them are not willing to change from the traditional pedagogical methods.

Other challenges faced by the adoption of ICT to classroom teaching in Nigerian primary schools include non-availability or inadequacy of ICT infrastructure including computer hardware in schools, overdependence of schools on government for the provision of everything needed for effective teaching and learning in schools, high level of poverty among others.

Recommendations

(i) Primary education in Nigeria should be better funded. This will make more money available for procurement and installation of ICT related gadgets in schools.

(ii) Government should as a matter of urgency do something about the erratic supply of power throughout the country because the use of ICT largely depends on power. Also, all the rural areas throughout the country should be connected to the national grid as there are primary schools scattered all over these rural areas. Government should be sincere about the funding of power generation and distribution.

(iii) All employed teachers currently in primary schools should be made to undergo mandatory training and retraining on ICT usage to provide them with practical and functional knowledge of computer, internet and all other areas of ICT that can be used in the classroom.

(iv) The curriculum of teacher education in Nigeria especially that of the colleges of education should be reviewed in order to accommodate compulsory curses on ICT for all the students undergoing this programme.

(v) As it has been stated in the new Universal Basic Education curriculum, all primary school pupils should be provided with basic concept of ICT by qualified teachers.

(vi) There is also the need for high level of advocacy for the teachers to desire to change from the traditional chalk and talk method of teaching. Nigerians orientation also needs to change in the area of poor maintenance culture especially of properties owned by government. When ICT gadgets are provided in the schools, everybody in the school system should be involved in its maintenance.

(vii) Lastly, it is important that all the stakeholders (government, parents, teachers, non-governmental organizations, etc.) in primary education in Nigeria should contribute to the planning and deployment of ICT for teaching and learning in our primary schools.

Conclusion

Findings of great educators have led to the advocacy of the type of education that is resource-based and learner centered. The teacher in this case only performs the role of a guide in the teaching-learning process. This will help pupils to become independent learners capable of developing critical thinking and problem-solving strategies. Appropriate use of ICT constitutes a potent tool for developing these skills in the learners. However, the use ICT in teaching and learning at the primary school level in Nigeria education presents some challenges which must be overcome.

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