THE APPLICATION OF INFORMATION AND COMMUNITY TECHNOLOGIES (ICT) IN NIGERIAN SECONDARY SCHOOLS

BY

MR KING O. EZE
DEPARTMENT OF COMPUTER SCIENCE
RIVERS STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY
RIVERS STATE

ABSTRACT

The study investigates the application of information and community technologies in Nigerian Secondary schools. ICT in Education is an instrument par excellence that a nation can rely upon to bring about self-reliance. The study observed that Nigerian secondary schools still experience a lag in its implementation, and this continues to widen the digital and knowledge gap. Access to ICT facilities is a major challenge facing most schools. The study concludes that despite the roles ICT can play in education, schools in Nigeria have yet to extensively adopt them for teaching and learning. Efforts geared towards integration of ICT into the school system have not had much impact. Problems such as poor policy, project implementation strategies and poor information infrastructure militate against these efforts. The study recommends that efforts should be made by government to post and provide teachers skilled in ICT to each school to impart ICT skills to the student and also should stabilize electricity supply in Nigeria.

Keywords: ICT, Education, Teaching, Learning, Instruments

INTRODUCTION

The place of Information and community technologies (ICT) in education and the world in general cannot be underestimated. ICT has become key tools with a revolutionary impact on how we see the world and how we live. Modern day businesses are conducted and facilitated through the use of telephones, fax machines and computer communication networks through the internet. This phenomenon has given birth to the contemporary e-commerce, e-government, e-medicine, e-banking and e-education among others. According to Bandele (2006), ICT is a revolution that involves the use of computers, internet and other telecommunication technology in every aspect of human endeavour. The author posited that ICT is simply about sharing and having access to data with ease. It is regarded as the super highway through which formation is transmitted and shared by people all over the world. Ozoji in Jimoh (2007) defines ICT as the handling and processing of information (texts, images, graphs, instruction etc) for use, by means of electronic and communication devices such as computers, cameras, telephone.

Ofodu (2007) also refer to ICT as electronic or computerized devices, assisted by human and interactive materials that can be used for a wide range of teaching and learning as well as for

personal use. From these definitions, ICT could therefore be defined as processing and sharing of information using all kinds of electronic device, an umbrella that includes all technologies for the manipulation and communication of information. The field of education has certainly been affected by the penetrating influence of ICT worldwide and in particular developed countries; ICT has made a very profound and remarkable impact on the quality and quantity of teaching and learning research in the educational institutions. Information and community technology has the potentials to accelerate, enrich, and deepen skill; to motivate and engage students in learning to help relate school experiences to work practices; to help create economic viability for tomorrow's workers, contribute to radical changes in schools; to strengthen teaching and to provide opportunities for connection between the school and the world.

Aribisala (2006) posits that ICTs are increasingly playing an important role in organizations and in society's ability to produce access, adopt and apply information. They are however being heralded as the tools for the post-industrial age and the foundations for a knowledge economy due to their ability to facilitate the transfer and acquisition of knowledge. Stressing the importance of the use of ICT in schools, Olurunsola (2007) also posits that through ICT, educational needs have been met; it changes the needs of education as well as the potential processes. Messages can be communicated through e-mail, telex or telephones, particularly the mobile ones.

Statement of the Problem

A cursory look at secondary schools in Nigeria has shown that many teachers in the system still rely much on the traditional "chalk and talk" method of teaching rather than embracing the use of ICT. It is noted that computer is not part of classroom technology in over 90% of public schools in Nigeria, thus the chalkboard and textbooks continue to dominate classroom activities. This is an indication that the students are still lagging behind in the trend of changes in the world. This presupposes that there is the tendency for the teachers and students to be denied the opportunities which ICT offers in the teaching-learning activities. There is the need to replace the traditional pedagogical practices that still underpin the educational system is the country, hence the need for the application of ICT in Nigerian Secondary Schools.

Literature Review

Concept of Information and Communication Technology (ICT)

Information technology can be defined as the hardware, software, telecommunications database management and other information processing technologies used in computer based information system (IBM Annual Report, 1997). It is the technologies used for information processing. Zenas (2006) asserts that information communication technology is a term used to refer to the use of computers and other related devices to organize, store, retrieve and transmit information either within or outside an organization. It can be viewed as the use of computers and other devices for data capture, processing, storage, retrieval and transmission in a most organized form to aid decision making process in an organization.

Adams (2009) defines IT as the acquisition, production, transformation, storage and transfer of data by electronic means in forms such as local pictorial, textual and numeric so as to facilitate interaction between people and machines. According to Heskett (1999), ICT technology in a broad sense includes hardware, software and methods. In other words, it is a

combination of hardware (the physical machine), software (the electronic programmed device that runs the hardware) and the methods, the best combination of hardware and software whose primary role affect information and presentation.

Fubara (1989) opines that computers are pieces of electronic equipment capable of carrying out very complex calculations and other activities in a very short space of time. A computer therefore is a sophisticated magnetic machine which is carefully assembled to be able to manipulate or solve any given complex problems which could take ordinary human being a lot of time to accomplish in the shortest possible time. The computer, because of its capability, can manipulate a given problem be it in the area of engineering, sciences, mathematics, all business problems, etc, without any human intervention (Ile, 2001). The computer can cut down the time used in solving problems, and guarantee increased productivity. It can also reduce cost of production and provide effective services. However, there are two types of computer components; these are the hardware and software.

Application of Information and Communication Technologies in Nigerian Secondary Schools

There are developments in the Nigerian education sector which indicate some level of ICT application in the secondary schools. The Federal Government of Nigeria, in the National Policy on Education (Federal Republic of Nigeria, 2004), recognizes the prominent role of ICTs in the modern world, and has integrated ICTs into education in Nigeria. To actualize this goal, the document states that government will provide basic infrastructure and training at the primary school. At the junior secondary school, computer education has been made a pre-vocational elective, and is a vocational elective at the senior secondary school. It is also the intention of government to provide necessary infrastructure and training for the integration of ICTs in the secondary school system.

It should be noted that 2004 was not the first attempt by the Nigerian government to introduce computer education in schools. In 1988, the Nigerian government enacted a policy on computer education. The plan was to establish pilot schools and diffuse computer education innovation first to all secondary schools, and then to primary schools. Unfortunately, the project did not really take off beyond the distribution and installation of personal computers (Okebukola, 1997; cited by Aduwa-Ogiegbaen and Iyamu, 2005). Okebukola (1997), and Aduwa-Ogiegbaen and Iyamu (2005), concludes that the computer is not part of classroom technology in more than 90 percent of Nigerian public schools. This implies that the chalkboard and textbook continue to dominate classroom activities in most Nigerian secondary schools.

The Federal Ministry of Education has launched an ICT-driven project known as School Net (www.snng.org), (Federal Republic of Nigeria, 2006) and Adomi 2005; Okebukola, 2004), which was intended to equip all schools in Nigeria with computers and communications technologies. In June 2003, at the African Summit of the World Economic Forum held in Durban, South Africa, the New Partnership for African Development (NEPAD) launched the e-Schools Initiative, intended to equip all African high schools with ICT equipment including computers, radio and television sets, phones and fax machines, communication equipment, scanners, digital cameras, and copiers, among other things. It is also meant to connect African students to the Internet. The New Partnership for African Development (NEPAD) capacity-

building initiative will be executed over a ten-year period, with the high school component being completed in the first five years. Three phases are envisaged, with fifteen to twenty countries in each phase. The phases are to be staggered, and an estimated 600,100 schools are expected to benefit. The aim of the initiative is to impart ICT skills to young Africans in primary and secondary schools, and to harness ICT to improve, enrich, and expand education in African countries (Aginam, 2006).

The Nigerian Federal Government has commissioned a Mobile Internet unit (MIU) operated by the Nigerian National Information Technology Development Agency (NITDA). The MIU is a locally-made bus that has been converted into a mobile training and cyber centre. Its interior has ten workstations, all networked and connected to the Internet. The MIU is also equipped with printers, photocopiers, and a number of multimedia facilities. Internet is provided via VSAT with a 1.2m dish mounted on the roof of the bus. It is also equipped with a small electric generator to ensure regular power supply. The MIU takes the Internet to places, areas and various primary and high schools (Ajayi, 2003). The buses used were few, hence most rural areas and schools have not yet been covered.

Problems Militating Against Effective Integration of Information and Communication Technologies (ICTs) in Nigerian Education

There are certain factors which hinder teacher training institutions in Nigeria in providing quality ICTs knowledge and skills for trainee teachers. Some of these include lack of technically experienced lecturers, limited ICTs facilities and infrastructure, inadequate course content for ICTs training, lack of clear direction in the Nigerian National Policy for Information Technology (NNPIT) on teacher education, lack of leadership by professional organisations, and problem of electricity, (Zenas, 2006). These factors are enunciated as follows:-

Lack of technically experienced lecturers: Most of the lecturers in Nigerian universities, colleges of education, and polytechnics do not have competence in the use or integration of ICTs in their instruction. Majority of lecturers who had taken tenured jobs were taught without ICTs and they have not developed competence in the use of ICTs; thus they cannot model good use of technology (Idowu , Adagunodo & Popoola, 2003). Even in the USA, faculty lecturers have been seen not to be better than their students in ICTs usage (Moursund & Bielefeld 1999).

Limited ICTs facilities: Limited funds available to higher institutions have hindered the provision of needed facilities and infrastructure to promote ICTs usage. Most faculties of education and schools of education in Nigeria do not have dedicated laboratories for ICTs training. Classrooms are equally not equipped for ICTs usage. Thus, teacher trainers and trainee teachers do not have access to ICTs within their schools. The few available ones are used mostly for administrative purposes.

Inadequate course content for ICTs: The curriculum for teacher education is centralised based on NUC draft benchmark or NCCE minimum academic standard. The content and strategy are based on single course model. It is meant to teach trainee teachers about the computer, not teaching them how to learn or teach using the computer. While this is good for introductory stage, its outcomes are very limited. They cannot furnish trainee teachers with the needed skills and knowledge to integrate ICTs in their instruction.

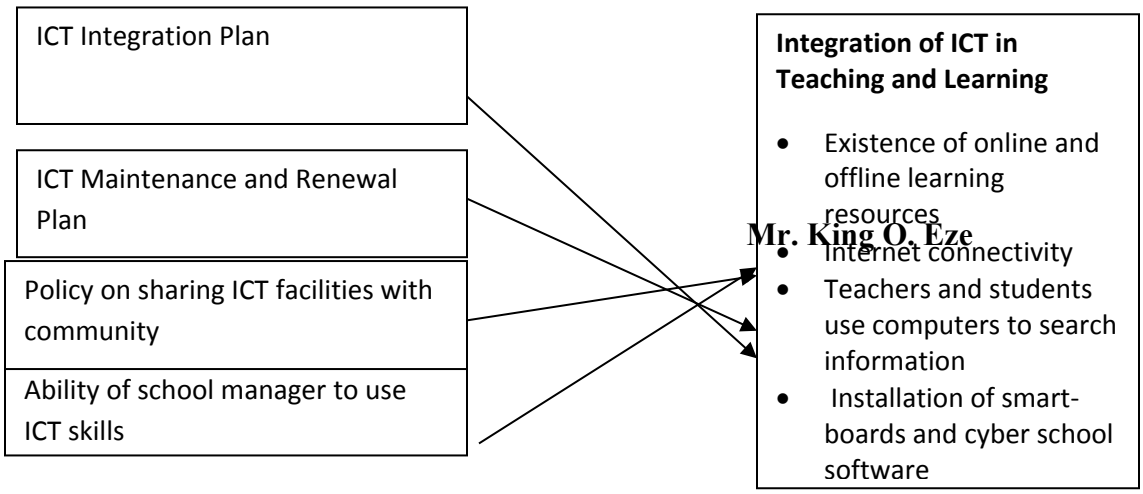
Lack of clear direction on teacher training on ICTs in the NNPIT: The national policy on information technology (FRN, 2001), is supposed to give clear directions for successful use of ICTs in schools. The policy only made superficial reference to education at the mission, goals, and strategy levels. There is no sectorial reference to education. Education is subsumed under human resource development. Since no clear information or reference is made to teacher development, the document does not give focus to teacher education in the implementation of ICTs in Nigeria.

Lack of leadership by professional organisation: In advance countries professional organisations like International Society for Technology in Education (ISTE), Association for the Advancement of computer in Education, Milken Exchange on Education Technology, play pivotal roles in promoting ICTs integration in schools, and also in setting standards for teacher training. However, professional organisations like Computer Association of Nigeria (CAN), National Association for Educational Media and Technology (NAEMT), computer professionals, and so on, have not impacted on the use of ICTs in schools, the promotion of ICTs in teacher education, or in setting academic or professional standards on ICTs. This lack of leadership creates a vacuum which militates against quality ICTs component of teacher education in Nigeria

Problem of electricity: ICTs equipments are electrical equipment that requires electricity for operation. Most rural areas of Nigeria do not have electricity facility and in urban areas electricity supply is epileptic, and this reduces the life span of hardware and also militates against effective usage. Even enthusiastic teacher educators and students who have access to computers may be barred from using them as a result of power outages.

Lack of access to ICTs in trainee teachers' field experience: Practical teaching practice is an indispensable aspect of teacher education. During their field experience trainee teachers do not have access to technologically enriched classroom. Rather they are exposed to classrooms where they use chalk board to teach. This does not give trainee teachers opportunity to explore the little knowledge gained in the area of ICTs.

Figure1: Conceptual Framework showing integration of ICT in teaching and learning



Source: The national policy on information technology (FRN, 2001)

Conclusion

The finding of this study has shown that Nigerian secondary schools are lagging behind in the level of application of ICT in the teaching-learning process. The ICT facilities are lacking in schools, the capacity for using ICT by both teachers and students is also very l ow. Despite the perceived benefits in the use of ICT in school, there are a lot of factors inhibiting the successful application of ICT in secondary schools. In order to fit into the new scientific order, it is necessary for Nigerian institutions and individuals alike to develop a society and culture that places a high value on information and communication technology. The following recommendations are therefore made:

Recommendations

1. Government should increase funding for the entire educational sector with emphasis on ICT as this will help improve the level of ICT facilities in the schools.
2. There should also be continuous and periodic training of teachers on computer and ICT skills acquisition. This will help provide them with practical and functional know-ledge of the computer, the internet and associated areas of ICT with the hope of integrating it with instructional methods of teaching and leaning.
3. Policy makers should suggest and facilitate the use of ICT for schools with poor learning outcomes or with a diverse student population.

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