

Revitalizing Secondary School Education through Application of Information and Communication, Technology (ICT) for Social, Political and Economic Development in Nigeria: Implication for Educational Managers

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Abstract

Information Communication Technology (ICT) plays a vital role in enhancing the quality of education. The main purpose of this paper is to present how secondary school education could be revitalized through application of Information and Communication, Technology (ICT) for social, political and economic development in Nigeria: implication for educational managers. Information, Communication and Technology (ICT) applications in Management of schools is currently necessary due to its capabilities in facilitating administrative activities from data storage to knowledge management and decision making processes. This paper review literature regarding the applications of ICT, types of ICT applications and their effectiveness in administrative activities of secondary schools in Nigeria. Educational managers implications of ICT application such as face book, Whatsapp, U- tube and twitter could be used by the teachers to teach English language and Mathematics effectively while students are in the school or at home without any in hindrance were look at. Factors affecting the use of ICT applications in Nigeria secondary schools to include Weak infrastructure were discussed. Finally suggestions for school administration growth of ICT knowledge and practice so as to help in realization of educational aim, goal and objectives in the country were also discuss.

Keyword: Educational Institution, ICT, Social, Political, Economic, Development and Educational Managers

Introduction

It is common to many establishments in Nigeria, including educational institutions, will still keep records in files and tucked them away in filling cabinets where they accumulate dust. Many of these files are often eaten up by rodents and cockroaches and rendered them irretrievable. A great deal of routine administrative work in government establishment is still done manually with the state and the Federal government showing little or no interest in embracing ICT. The official administrative duties in government offices and educational institutions can be better managed through ICT. Educational administrative functions include a wide variety of activities such as educational governance,

supervision, support services, infrastructure, finance, budgeting, accounting, personnel selection and training system, monitoring and evaluation, facilities procurement and management, equipment maintenance and so on Thomas in (Aduwa & Iyamu, 2005) .

In most Nigeria schools, personnel's still go through the vigorous exercise of manually registering of students, maintaining records of pupil's performance, keeping inventory list of supplies, doing cost accounting, paying bills, writing of reports and drawing architectural designs. The personnel's in most of our schools often spend hours, days, and even months in doing most of these works. In addition, with the help of ICT these exercises can be drastically reduced and enhances overall management procedure. Thomas in (Aduwa & Iyamu, 2005) Computers bring great speed and accuracy to each of these tasks, along with the convenience of storing large quantities of information on small disks or tapes.

The current condition in management of Nigeria secondary schools is disheartening and discouraging. The country tends to neglect its educational system forgetting that no meaningful development will occur in any nation without giving education a serious attention. The country seems to be still living in pre-colonial times where things are done manually in the management of education while even developing countries in Africa such as South Africa, Kenya, Uganda, Ghana and Tanzania are far ahead of Nigeria in term of ICT applications usage. Despite being rich in human and material resources, Nigeria cannot be counted among progressive nations using ICT in management of our schools, as technology has become a critical tool for achieving success in education. It's as result of the importance of ICT, that JAMB decides introduced computer base exams but been faced with many challenges ranging from poor services, system breakdown and difficulty in operating computer by students who came from rural areas because some of them have never had access to computer in their entire life.

It is generally acknowledged that the education system of Nigeria is in dire need of reforms. In most primary, secondary, and tertiary level institutions across the country, education is not supported by ICT-based systems. Where ICT exists, it is a marred by several challenges ranging from lack of stable electricity supply to scarcity of ICT qualified educators. Yet, there is hard evidence that ICT can play a major role in education specifically Nigeria and other developing countries of the world. Wagner, Day, James, Kozma, Miller & Unwin (2005) note that "ICTs are currently being used widely to aid education in many developing countries, and it appears that there is increasing demand for their use in education by policymakers and parents in developing countries.

Revitalizing secondary school education through the use of ICT is indeed a viable option for social, political and economic growth in Nigeria. Unfortunately, as Bambanota (2006) observed, investing in education has not been given top priority by different governments for many years, as government allocated less than 15 % of its budget to education from 1999 to date. This is hardly enough to improve basic educational infrastructures in the country, let alone adopt new ICT infrastructures. As can be noted, it is hard for the current government to deploy and implement its national ICT plan for education with this type of budget allocations and as well the economic recession the nation is presently passing through. It is even hard for educational institutions to fulfil their traditional obligations. Investing in ICT requires considerable capital, vision, and political will on the part of government officials. However, the key question of course is, how serious is the current government in improving the standard of secondary school educational system in Nigeria? Research has shown that adequate education can reduce poverty, advance technology, improve health care and education services, provide scaffolding for students, ensure sustainable development and empower underprivileged populations. Indeed, Information and Communication Technology plays a key role in enhancing the quality of education in any nation (Bambanota 2006:13).

However, successful implementation of ICT requires strategic planning. As Wagner, *et al* (2005) observed that putting computers into schools is not enough to influence student learning. That it requires some specific applications of ICT that could have positively influence on student knowledge, skills and attitudes, as well as teaching practices, school innovation, and community services. The secondary school educational system in Nigeria has not undergone enough reforms to do away with the system set up by colonial rulers. As the 127 World Bank Report (2008) pointed out, old education systems in many African countries including Nigeria were not developed to empower Africans. There is urgent need for educational reforms in Nigeria. As Unwin (2009: 207) notes, ICT is certainly not a panacea for education, but it is a powerful tool that when implemented appropriately can catalyse and accelerate education reform and development.

Furthermore, a growing body of literatures supported that Information and Communication Technology (ICT) is a powerful tool for education in any country (Unwin, 2009). When appropriately implemented, ICT can increase student productivity and learner independence, can engage students in active learning, and can promote high-level thinking (Yelland, Neal & Dakich, 2008). It can also accelerate education reform and social, political and economic development. The Nigeria can greatly benefit from an ICT-supported education system. It is our view that cost-effective use of information and communication technology will

significantly and positively influence the educational and social, political and economic landscape of Nigeria.

Given the need for education reforms to be grounded in information and communication technology, it is important that ICT and education reforms be intertwined. When education and its supporting ICT are properly synchronized, the outcome can only be cost-effective and efficient.

This paper considers the role of ICT literacy in education and examines some of the challenges that must be overcome for a successful implementation of an ICT-supported education reform plan in Nigeria. I begin by reviewing the key components of ICT.

Conceptual Framework

Revitalizing: According to Oladele (2011), revitalizing is a process of giving new life or energy to something or somebody that is weak or inactive to become strong and successful again. There is need to revitalize the secondary school education through Information and Communication Technology (ICT) for social political and economic development in Nigeria.

Information and Communication Technology (ICT) is widely viewed as a means of effecting change in education, which can translate directly to increased social economic development. Tinio (2009: 4) defines ICT as a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information. These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephone.

Torero & Braun (2006) offer a much broader definition of ICT, which encompasses equipment and services. ICT includes the computing industry (hardware, software, networks, the Internet, and related services); electronic data processing and display (such as photocopiers, cash registers, calculators, and scanners, as well as a myriad of less well-known machines specifically tailored to production and manufacturing); telecommunications and related services (such as fixed and cellular telephones, facsimile machines, instant messaging, teleconferencing, and so on.); and audio-visual equipment and services (including television, radio, video, DVDs, digital cameras, compact discs, MP3 players among others).

Kim in Sylvester (2010) provides a sensible definition that captures the essence of ICT in education. He defines ICT in education as a Comprehensive approach to

innovate education systems, methods, and management through Information Communications Technology. Put simply, ICT is thought of as a reliable vehicle for education, a platform for communication, and a powerful tool for economic growth.

National Policy on Education (2014) emphasis on the developing an ICT literate society which it's believe to support success in the global markets of the Nigeria future. It's focused on three (3) main areas of interest in ICT application in education, which include:

1. ICT application will be used as an enabler to seduce the digital device between the country schools by enabling ICT access to all students.
2. It will be used as teaching and learning tools in education, taught as an independent subject and integrated into others; and
3. It will be used to enhance efficiency, effectiveness and productivity of management in education (multimedia development corporation, 2005).

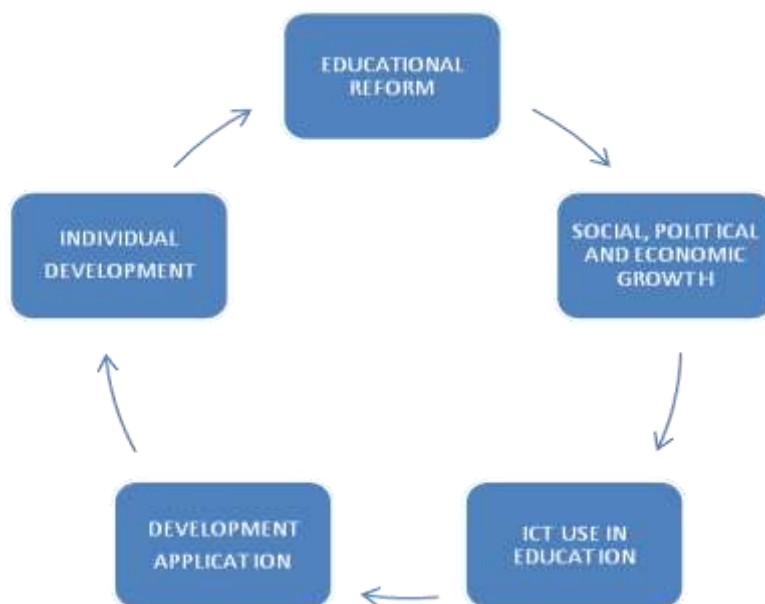
This paper have reviews some of the factors that tend to influenced the choice made by the school mangers as well as the reasons why certain ICT usage need to be adopt and why the policy may not work (Singh & Muniandi, 2012). More specifically this review sets out to address the following objectives:

1. Identify applications of ICT for school management;
2. To learn about ICT application tools which are being used by the school management; and
3. To understand effectiveness of ICT applications for school's management activities.

Roles of Information, Communication and Technology (ICT) in School Management

In the recent years, ICT applications have been used in the management of schools so as to support and sustain educational development. A software based tools and applications have been created or designed in computer program which execute useful tasks in educational activities such as; (word processing, desktop publishing, running a database, power point presentation and e-mail program which ease all the school activities (Higgins & Packard, 2004). There are main areas where ICT applications are applied in daily administrative activities/ actions. In the course of discharging their duties, power point presentation could be used to give an in-house training to the staff and which can as well be used by the school manager to evaluate the teacher's effectiveness in the classroom curriculum implementation.

Webb (2011) noted that instructional leaders could directly or indirectly determine the success or failure of teacher's competencies in an instructional technology. These leaders are also instrumental on integrating technology into to the classroom curriculum through the teachers who are employed in the school. School managers play a vital role in providing successful learning environments and as well make it possible for their teachers to adopt the technology application in order to make a difference (Afzaal, 2012). Mwalongo (2011) has also suggested that educational managers can use ICT applications to prepare school announcements letter, reports, letter of meeting with parents, students, registration, and teachers and staff employment. Beside ICT applications can be used effectively by school managers in the decision-making process, store vital school information as well as online applications (Selwood 2004; Afzaal, 2012).



Source: Adapted from Song, Heo & Lee (2009: 12)

Information, Communication and Technology (ICT) Application tools for institutional Management

There are lots of ICT application tools that have been widely used in school management. Available ICT applications for educational administrative purposes include internet, websites, software and hardware such as printers, photocopy machines, scanner and computer (Kazi, 2012; Mwalong, 2011; Susmita, 2007). However, the ICT tools widely used in school management are:

1. Internet- based tools: In the last two to three decades, the internet and ICT application tools have been expanded into the field of education all over the world. This is due to capabilities of internet to provide opportunities for introducing advanced teaching-learning methods. The advanced modern methods of teaching and learning helped in preparing students for future workforce. Internet based searching, communication and managing materials which will directly or indirectly increase the school performance (Gharifekr, 2012).
2. Hardware application: As year passes by, computers and other information, communication and technology evolved. New machines, new equipment created and new opportunities especially in school administration, which make the management process easier, faster and cheaper. We can see that ICT application tools have equipped school management such as computer work, photocopy machines, TV, radio, digital camera, scanner, DVD players, laptops, multimedia projectors and overhead projectors (Mwalongo, 2011; Richardson, 2007). Computers are being used to store various documents of the institutions, teachers, students and other staff. Furthermore, interactive whiteboard, smart board and multimedia projectors are mostly used by school managers for holding meetings, in-house training for teachers and staff, video conferencing and presentation purpose (Mwalongo, 2011; Higgins, 2004; Ashok, 2007).
3. Software applications: A School manager tends to use various software applications for their job management purposes. The most frequently used applications in the management of schools are: Microsoft word, Excel and power point, spread sheet and database.

Effectiveness of Information, Communication and Technology (ICT) in Nigeria Education System

Effectiveness is the degree to which the school desired goals are correctly achieved bearing in mind the demands from both internal and external environments Lin et.al in (Simin, 2013) School effectiveness is a goal set by administrative leaders their leadership strategies to help the school reach certain achievements across the board. Using ICT applications in school management will help in achieving the stated objective easily. The teachers tend to do well in term of teaching and learning using ICT application and the students tend to do well by constantly practicing.

Implications of ICT to Educational Managers

Having considered the concept of ICT in education, our focus now would be directed towards ICT and curriculum issues as a manager's implication. Thus in

this context, manager refers to as finding solution, ways and manners on how to implement ICT in secondary school curriculum delivery in order for students to have better understanding of the curriculum contents, became self-reliance and productive in making a meaningful contribution to the society. However, for the ultimate goal of implementing ICT in Nigeria secondary schools to be achieve, the federal, state, local government and UNESCO should embarked on series of training and re- training program such as workshops, seminars enlightenment campaign and conferences on the use of ICT for school age. Based on that, the following measure should be taken into consideration for the enhancement of ICT especially in secondary school curriculum.

1. The reflection of ICT application such as face book, Whatsapp, U- tube and twitter can be used by the teachers to teach English language and Mathematics effectively while students are in the school or at home without any in hindrance.
2. The school manager should incorporate community people into the affair so that they can help in providing and equipping teachers while in training with methods and also the school managers should mobilize school communities and parents to self-guard ICT facilities in their area.

Factors Affecting the Use of ICT Applications in Nigeria Schools

According to Aduwa & Iyamu (2005), there are several impediments to the successful use of information and communication technology in secondary schools in Nigeria. These are: Weak infrastructure, lack of skilful manpower, lack of relevant software and limited access to the internet among others.

1. **Weak infrastructure:** In Nigeria, a formidable factor to the use of information and communication technology is infrastructural deficiencies. Computer equipment was made to function with other infrastructure such as electricity under “Air condition”. For the past seventeen (18) years, Nigeria has been having difficulty in providing stable and reliable electricity that could use in implementing ICT program in our schools. Most villages Nigeria do not have access to electricity, thereby denying the secondary schools opportunity to benefit from the use of electronic equipment such as radio, television, video recorders, and computers among others. The few Internet access available in Nigeria is found in city centres’ (Aduwa & Iyamu, 2005).

Another factor to ICT usage in Nigeria is inadequate telecommunication facilities. Though the International Telecommunication Union (ITU) has

rated Nigerian's Telecommunication Sector as the fastest growing in Africa, majority of Nigerians have telephone but in most cases the networks are poor. At the end of 2013, total private investment in telecommunication industry in the country was \$50m and there were over 20,000,000 lines with over 15,000,000 connected. The government officials and officers acquired more than half the lines connected. On the Global System of Mobile Communication (GSM), Nigeria is also ahead of most African countries with more than 15 million subscribers connected. The telecommunication sector in Nigeria has attracted more direct foreign investment hence the growth rate is faster than any other sector of the economy.

2. Lack of skilled manpower: Nigeria does not only lack information infrastructure, it also lacks the human skills and knowledge to fully integrate ICT into secondary schools. To use information and communication technology (ICT) in secondary schools in Nigeria, the need for locally trained workers to install, maintain and support these systems cannot be over emphasized. There is acute shortage of trained personnel in application software, operating systems, network administration and technicians to service and repair computer facilities on our secondary schools. Those who are designated to use computers in Nigeria secondary schools do not receive adequate training, while some do not receive any training at all there by finding it difficult operate the software (Okebukola, 1997).

In Nigeria also, most school's teachers lack the skills to fully utilize technology in curriculum implementation hence the traditional chalk and duster approach still dominates classroom teaching in our secondary schools across the country. Information transfer using ICT is minimal or non-existence in secondary schools in Nigeria (Anao, 2003). School teachers in Nigeria need to be trained on educational technologies and the integration of computers into classroom teaching. According to Carlson & Firpo (2001), "teachers need effective tools, techniques, and assistance that can help them develop computer based projects and activities specially designed to raise the level of teaching so as to improve student learning but reverse is the case.

3. Lack of relevant software: There is no doubt that the ultimate power of technology is the content and the communication. However, software developers and publishers in the developed countries have been trying for long to develop software and multimedia that have universal application, due to the differences in education standards and requirements, these

products do not integrate into curriculum across countries. There is a great discrepancy between relevant software supply and demand in developing countries like Nigeria. According to Salomon in (Aduwa and Iyamu, 2005), there are clear indications from many countries that the supply of relevant and appropriate software is a major problem obstructing wider application of the computer.

4. Limited accesses to the Internet: In Nigeria there are few Internet providers that provide Internet gateway services to Nigerians. Such Internet providers are made up of Nigerians who are in partnership with foreign information and communication companies. Many of these companies provide poor services to customers who are often exploited. The few reputable companies, which render reliable services, charged high fees there by limiting access to the use of the Internet. The greatest technological challenge in Nigeria is how to establish reliable cost effective Internet connectivity. In a country where only about less than 5% of its populace has home personal computers, the few reliable Internet providers who have invested huge sum of money in the business have a very small number of customers. Therefore, charge high fees in order to recover their investment in reasonable time. Secondary schools in Nigeria are not adequately funded to provide furniture, requisite books, laboratories and adequate classrooms let alone being given adequate funds for high-technical equipment (computers) and Internet connectivity (Aduwa & Iyamu, 2005).

Suggestions

Based on the above factors, this paper suggests the following:

1. School community relationship through School Base Management Committee (SBMC) should help providing ICT tools such as Laptop and software tools to school managers and Teachers to enable them discharge their duties effectively and efficiently.
2. Information, Communication and Technology (ICT) department in the ministry of education should conduct training, re-training programs, workshop on ICT and design forums to focus on professional development of educational managers and integrating ICT across the school curriculum that will enable the school leaders to be perfect in ICT usage.
3. The school managers should initiate Public Private Partnership (PPP) so as to help in providing relevant ICT software for schools that enable them to implement the ICT program in our schools.

4. The government should ensure that the telecommunication network provides service to every part of the country so that implementing ICT program will not be a problem in our secondary schools and as well, the price should be affordable.
5. The Federal Ministry of Mines and Power should work towards stabilizing electricity supply in Nigeria.

Conclusion

Despite the roles ICTs can play in education, secondary schools in Nigeria have yet to extensively adopt them for school managers, teachers and students. Efforts geared towards integration of ICTs into the secondary school system, have not had much impact. Problems such as Limited accesses to the Internet, lack of relevant software, and weak infrastructure militate against these efforts. Information and communication technology (ICT) will have great potential for knowledge dissemination, sustained economic growth, effective learning and social development in Nigeria.

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