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Examining the Legal Framework and Challenges for Information Technology on the Education Systems for Sustainable Development in Nigeria

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Abstract: This study examines the legal framework and challenges for information technology on the educational systems in Nigeria. The vision to make Nigeria an ICT capable country in Africa and a key player in the information society by using ICT as an engine for sustainable development and global competitiveness is yet to be achieved; this is because ICT is at particularly a dynamic stage in Africa and Nigeria is not left out. The National Policy on Education (Federal Republic of Nigeria) as revised in 1988 and 2004, re–emphasized the need for the integration of ICT in the Nigerian educational system. Archival records and questionnaires were the sources of data utilized. Ten (10) questionnaires were purposively and randomly distributed to policymakers at the ministries of education. Findings revealed; three objectives emphasized in the Nigerian National Policy for Information Technology (FRN, 2001). These are to empower youths with ICT skills, integrate ICT into the mainstream of education and training, and establishment of multifaceted ICT institutions as centers of excellence of ICT. Challenges that impede its actualization include; poor IT infrastructure, inadequate ICT skilled personnel, epileptic power supply and high cost of ICT facilities, etc. It is therefore, recommended that there must be local manufacturing of ICT materials to reduce the cost of acquiring the software and hardware components, capacity development at all levels of our educational system, ICT training and re– training, education and usage to enhance the maximization of ICT use nationwide. Also, access to a stable power supply should be put in place by the government to promote universal access to ICT and collaboration with international organizations like African Virtual Open Initiatives and Resources (AVOIR) and among tertiary institutions in Nigeria.

Keywords: Legal Framework, Information Technology, Challenges, Sustainable development, Education Systems in Nigeria..

INTRODUCTION

The United Nations Educational, Scientific and Cultural Organization (UNESCO), uses the term Information Technology, or Information and Communication Technologies, to describe; the tools and the processes to access, retrieve, store, organize, manipulate, produce, present and exchange information by electronic and other automated means. These include hardware, software and telecommunications in the forms of personal computers, scanners, digital cameras, phones, faxes, modems, CD and DVD players and recorders, digitized video, radio and TV programmes, database programmes and multimedia programmes" (UNESCO, 2010). Information Technology as described by Scott (2002) sited by Agbetuyi & Oluwatayo (2012) encompasses a range of applications, communications and technologies which aid information retrieval and research communication and administration. These include online databases, library services and online services and fax machine. It has become a global phenomenon of great importance and concerns in all aspects of human endeavour, spanning across education, governance, business, labour, market, shares, productivity, trade, agriculture, commerce and others. The expression was first used in 1997 in a report by Dennis Stevenson to the UK government and promoted by the new National Curriculum documents for the UK in 2000.

Nigeria as a nation has recognized the potential of ICT in her educational system (Awagu, 2020). The national policy on computer education emphasized the need for the integration of ICT into the Nigerian educational system. This dates back to the National Policy on Computer Education (FME, 1988) which emphasized the need for primary school pupils to be introduced to the basic computer skills, the use of the computer to facilitate learning and rudimentary use for text writing, computation and data entry. For secondary school, they have related goals which were to be achieved at higher level. The tertiary institutions were also required to teach computer science as a discipline and to integrate it in school administration and instruction. However, the implementation was not effective. The National Policy on Education (Federal Republic of Nigeria) as revised in 1988 and 2004, re – emphasized the need for the integration of ICT in the Nigerian educational system. This is an acceptance of the need to go beyond computer to the level of ICT and also the need for infrastructure (Agbetuyi & Oluwatayo, 2012). This paper presents a brief history, and identifies the legal framework (policy) for information technology

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on educational systems, its objectives and challenges on learning in Nigeria.

THE LEGAL FRAMEWORK FOR INFORMATION TECHNOLOGY ON EDUCATIONAL SYSTEMS IN NIGERIA

The first national effort made by the Federal Government of Nigeria was the 1988 policy document, National Policy on Computer Education (FME, 1988). This document according to Yusuf and Yusuf 2009), emphasised the need for primary school pupils to be introduced to basic computer skills, the use of the computer to facilitate learning, basic text processing, computation and data entry. For secondary schools, the goals were similar to those set for primary schools, but to be pursued at a higher level with the following additions: the organisation of curriculum for secondary school students on computer education, and the decision to use the unity schools as the pilot institutions for computer education. The plan was to establish pilot schools and thereafter diffuse the innovation, first to all secondary schools and then to the primary schools. However, the policy, with its lofty goals did not take off beyond the distribution and installation of computers in some schools (Okebukola, 1997; & Aduwa *et al.,* 2005).

The national policy on education (Federal Republic of Nigeria), as revised in 1988 and 2004, re – emphasised the need for the integration of Information Technology in the Nigerian education system. The 2004, 4th edition, again emphasised the need for the introduction of information and communication technology into the school system. Another significant document on ICT was the Federal Ministry of Education (FME, 2004) Ministerial Initiative on e-Education for Nigerian Education System. Unlike the previous documents, the initiative was drawn based on input from major educational and human development commissions and board (National Universities Commission, National Colleges of Education Commission, National Board for Technical Education, Education for All Universal Basic Education, etc.). Also, for the first time, the need to integrate Information Technology in special education, particularly for people with disability was emphasised (Yusuf & Yusuf 2009). However, the document could not be implemented because the Minister who initiated the document was removed therefore leading to the death of the document which was meant to leapfrog the Nigerian educational institutions into Information Technology compliant ones. Political instability due to frequent change of ministers and administrators of education ministry in Nigeria is responsible for the inconsistencies in the formulation and implementation of Information Technology policies on education. Aduwa-Ogiegbam & Iyamu (2005) stated that the political conditions in Nigeria for the past thirty years leave no room for continuity. Over the years, political power in Nigeria has been used to entrench mediocrity, corruption in high places, misplace priority, and consumer culture. The direct effect of these is a battered economy and an educational system that is decaying by the day.

A National ICT policy was developed in 2012, its main objectives are to promote equitable access to educational resources through the strategic application of ICT, develop appropriate uses of ICT as a tool to assist curriculum delivery and make all school leavers computer literate thereby providing them with the requisite ICT skills as a platform for imminent employment and/or entry to specialized training for the information economy and also to promote the culture of lifelong learning (Akinnuwesi *et al.,* 2009).

Another long term strategic vision for the development of ICT in Nigeria was elaborated in National development plan titled Nigeria Vision 20:20:20 (National ICT policy 2012). The vision 20:20:20 of the Nigerian government is an initiative by the Federal Government of Nigeria to make Nigeria to be among the 20 developed countries by the year 2020. According to the document, the increasing globalisation driven by ICT makes it imperative for Nigeria as an emerging market to irreversibly consider the application and promotion of ICT strategy to facilitate its rapid growth and development (National ICT policy, 2012). In order to fulfil the Vision 2020 of Nigeria, the educational system has to be transformed and driven by ICT.

OBJECTIVES OF THE LEGAL FRAMEWORK FOR INFORMATION TECHNOLOGY FOR EDUCATIONAL SYSTEMS IN NIGERIA

Three major objectives, among others were emphasized in the Nigerian National policy for Information Technology (FRN, 2001). These are;

- to empower youths with ICT skills
- to prepare them for competitiveness in a global environment, and
- to integrate ICT into the mainstream of education and training and establishment of multifaceted ICT institutions as centers of excellence of ICT.

To achieve these objectives, nine major strategies were outlined. These include:

- Making ICT compulsory at all educational institutions;
- Developing ICT curricular for all levels of education;
- Using ICT in distance education;
- ICT companies' investment in education;
- Giving study grant and scholarship on ICT;
- Training the trainers' scheme for youth corps services on ICT;
- ICT capacity building at the zonal, state and local government levels;
- Establishing private and public dedicated ICT institutions;
- Working with international and domestic initiative to transfer ICT knowledge.

***Corresponding Author:** Gladys O. Chukwurah

THE JOURNEY SO FAR

In the educational institutions, especially higher institutions, the mode of delivery of knowledge and curriculum are not yet ICT enhanced, though the development of a National frame work on ICT Education in Nigeria, is predictably a step in the right direction toward improvement for the sector (Atureta, 2011). Factors militating against its full implementation abound; Factors militating against its full implementation are insufficient numbers of computers, epileptic power supply, problems of internet network failure, lack of ICT knowledge/skills, difficulty in integrating ICT to instruction, scheduling computer time, insufficient peripheral devices, inadequate software, insufficient teaching time, inadequate access, lack of qualified ICT personnel, cost of equipment, management attitude, there seems to be no clear and definite policy and/or curriculum for all levels of the Nigerian education system and lack of technical assistance among others.

- **Political instability:** frequent change of ministers and administrators of education ministry in Nigeria is responsible for the inconsistencies in the formulation and implementation of Information Technology policies on education. Aduwa-Ogiegbam & Iyamu (2005) stated that the political conditions in Nigeria for the past thirty years leave no room for continuity. Over the years, political power in Nigeria has been used to entrench mediocrity, corruption in high places, misplace priority, and consumer culture. The direct effect of these is a battered economy and an educational system that is decaying by the day.
- **Paucity of Information Technology infrastructure and lack of access:** The underlying assumption for ICT in education is universal access to the network. Although some progress has been made in this front, there is urgent need to break the crippling access barrier confronting institutions of higher learning in Nigeria. The profile is vastly different from campus to campus. Some have campus area networks backed by wireless narrowband or fibre – optic backbone; some have only internet cafes with grossly insufficient computers for the user base with a 50:1 ratio being typical and others have departmental LANs. The expected quality and performance will correspondingly be low. Web based education in the form of online, mobile and distance education requires reliable computer networks, broadband connectivity, fiber – optic backbones for all the bandwidth applications and to interconnect offices, departments and centers to the public Internet via the campus area network.
- **Epileptic power supply and problems of internet failure:** The irregular supply of electrical power has crippled the Nigerian economy and hindered the progress of research carried out by institutes, groups and individuals in the country. It is maddening for any establishment to start off new projects without addressing the almighty power supply problem. It is even worse to embark on extensive ICT project within an educational institution, without solving power problems first. The federal government is however, working towards improving the generation of enough megawatts of power in the country. The average power supply in the year 2008 was about 4hrs/day. Alternate sources of power are standby generators, batteries and solar panels. The premier universities cannot foot the bill of maintaining several standby generators that gulp down 10-30 litres of diesel per hour at 0.85USD (NI 32.6) per litre; nor can they purchase enough solar panels to go round the campus. Not all local Internet Service Providers (ISPs) can maintain their boosters for 24hrs due to high cost of gas. Sometimes, low voltages that do more harm than good is supplied. When power is rarely supplied, the admirable goals of transforming education with ICT and taking a paradigm shift in education is all a dream; having access to educational resources on demand, anytime, anyhow and anywhere is a story; e-learning would not be sustained either.
- **High cost of Information Technology facilities and services:** Broadly speaking, educational television broadcast and computer based and online learning are more expensive than radio broadcasts (Tino, 2002). The cost to the consumer of ICT services is quite expensive. Staff, students and researchers visit on-campus business cyber cafes to use the Internet: In these cafes, the average cost of browsing is 1.0USD (NI 56.00) per hour. As a result of the high cost, student and staff browse only when absolutely necessary. One could get a home internet subscription of 100 USD (N15600.00) of slow and on and off internet connectivity to 350 USD (N54600.00) of stable and fast access. A fortune could therefore be spent on Internet connectivity.
- **High Cost of Ownership:** There is a realization in Nigeria that the government alone cannot adequately shoulder the high cost of quality education in the 21st century. Partnership between government, industry and stakeholders appears to be the preferred option. In Nigeria a number of organizations for example, Education Trust Fund (ETF), Petroleum Technology Development Fund (PTDF), etc donate ICT laboratories equipped with 20-50 computers to some tertiary institutions. In addition they pay for one year of two years internet subscription and mandate the recipient institution to sustain the facility. Most of these laudable efforts have failed because the recipients were unable to pay for the high cost of equipment renewal, maintenance and bandwidth. This is because network costs in Nigeria consist of not only capital cost but also high operating cost.
- **Insufficient peripheral devices/Inadequate software:** Okwudishu (2005) indicated that unavailability of some ICT components in schools hampers teachers' use of it.

***Corresponding Author:** Gladys O. Chukwurah

- **Insufficient teaching time:** There is usually an insufficient time dedicated to the teaching of Information Technology in schools, and in most cases, the teaching/lecture tends to be more theoretical than practical.
- **Lack of qualified ICT personnel and lack of ICT knowledge/skills:** In some cases, most of the ICT personnel saddled with the teaching of Information Technology in schools are not professionally certified computer scientist which thwarted the learning process of the students because the inexperience teachers cannot give the students the knowledge they don't have.
- **Management attitude:** There seems to be no clear and definite policy and curriculum for all levels of the Nigerian education system and lack of technical assistance among others.

Other problems as noted by Instiful *et al.*(2003) include: high running and subscription costs; lack of good publicity and incentives to attract potential users; identification of information sources that meet the needs of users; poor Quality of Service of the internet and telecommunication services; effective management of network traffic and infrastructure.

Recommendations

Government and charitable Organizations should subsidize the high cost of Information Technology facilities and services. There should also be local manufacturing of ICT materials to reduce the cost of acquiring the software and hardware components.

Qualified and experience ICT personnel should be employed in our schools.

Stable power supply should be put in place by the government to enhance universal access to ICT.

There must be collaboration with international organizations like African Virtual Open Initiatives and Resources (AVOIR) and among tertiary institutions in Nigeria.

ICT should be made compulsory at all levels of our educational system, and the government should assist in acquiring the facilities for effective teaching and learning.

The government should promote her partnership with ICT organizations like CISCO, Microsoft Corporation, Intel Corporation, and School Net to enhance its full actualization.

More teaching time should be allocated to Information Technology and also make its teaching more practically oriented for better understanding of the course.

CONCLUSION

Information and communication technology is a powerful tool for the development of quality teaching and learning; it is a catalyst for radical change in existing school practices and a veritable vehicle for preparing the students for the future. Success in the implementation of an ICT legal frame work will be dependent on the recognition of the importance of sectoral application to education and sustainable implementation. Maximizing ICT potentials will involve greater involvement of private and public in the funding of the implementation, and proper monitoring.

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