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Effective Use of Information Communication Technology (ICT) for Economic and Security Sustainability

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ABSTRACT-*The main goal of this paper is to examine the use of Information and Communication Technology for economic and security sustainability in Nigeria. The pace of change brought about by new technologies has had a significant effect on the traditional process of teaching and learning, and the way education is managed. Easy worldwide communication provides instant access to a vast array of data, challenges, assimilation and in educational establishments that learning becomes a truly lifelong activity, an activity in which the place of technological change forces constant evaluation of the teaching learning process itself. The paper also advances some suggestions and/or recommendations for effective integration of ICT in the teaching learning process, bearing in mind current problems mitigating against the implementation of ICT in the Nigerian education system.*

Keywords: Information and Communication technology, Education, Economic and Security Sustainability.

1. Introduction

Education lies at the heart of every society. It is a key and vital element in the broad development of the nation's youth capacity to address and solve difficulties. Education forms the basis for the proactive and positive economic, social and political changes in the society and remains the key to empowerment of the people and the nations as a whole (Olawolu and Kaegon, 2012).

The world today is characterized by revolutionary advances powered by Information Communication Technology (ICT). The world is being reduced to a global village through the use of information and communication technology.Thus, ICT promotes national development and better relationship with the nations. It refers to the electronic and communication devices associated with human interactive materials that enable users to employ them for a whole range of teaching and learning process (Cox, Preston and Cox, 1999).

Information Communication Technology is the fusion of two technologies: They are Information Technology (IT) and Communication Technology (CT) (Iwu, 2006). ICT embraces all technologies for manipulative communication such as: radio, television, etc., and technology for communication through voice and sound or images using microphone, camera, loudspeaker, telephones /mobile phones (Osu, Udosen, and Apkan, 2010). Information and Communication Technologies (ICTs) are indispensable and have been accepted as part of the contemporary world, especially in the industrialized societies to the extent of giving a new phase to the education system in terms of pedagogical approach (Ololube, 2006).

According to Fari (2010), information and communication technology facilities are described as all the facilities available for the identification, generation, processing, storage, packaging, preservation and transfer of information, regardless of time and distance constraints. In other words, Information and Communication Technologies are information handling tools used for producing, storing, processing, distributing and exchanging of information. Today, it is an increasingly powerful tool for participation in global markets, promoting political accountability, improving the delivery of basic services and enhancing local development opportunities (UNDP, 2006). ICT facilities influence and affect people's

private and corporate work life in one way or the other. These ICT facilities are all encompassing in areas like technology, socialization, politics, economics and education for global transformation. Therefore, it becomes pertinent for teachers, who serve as key implementers of the nation's educational policy, to be well-informed and adequately equipped with ICT facilities in order to function productively in this age of information, explosion and technological advancement. The Federal Ministry of Education (2010) identifies the role of ICT policy on education amongst others as: "The policy provides the needed guidance on what is expected in the entire process of ICT integration in education to all stakeholders in education. Its implementation therefore, should lead to a speedy transformation of the teaching, learning and administration of education. This in turn will foster the production of graduates in the education system that can survive in the contemporary society, sustain national development and compete globally.

Okorie and Ezeji (1988) opined that a rich nation is one that is capable of meeting the economic, social, moral and political needs of the citizenry. Nigeria as a nation will enjoy sustainable development if ICT students in particular and all other students in general acquire maximum skills acquisition competencies in their specialties.

2. Problems Mitigating Against the Implementation of ICT in Nigeria Education

The digital divide between advanced and developing countries, particularly in Africa, is well established. Like most African countries, Nigeria as a nation came late and is still slow in the use of ICT in almost all sectors of the nation;s life (Yusuf, 2005). Accordingly, the common problems associated with the effective implementation of ICT are:

i.   Lack of qualified ICT personnel. Most institutions lack computer literate teachers and ICT experts that would support and manage the Internet connectivity and/or application of computing in the teaching learning process.
ii. Cost of equipment. The cost of equipment in a country like Nigeria with a bettered economy and seriously devalued currency is enormous. However, it should be noted that the problem might not be the funds nor the technology but rather the will on the part of government and/or the governors of education (Itegboje&Okubote, 2002|).
iii. Management's attitudes: The attitudes of various managements in and outside institutions towards the development of ICT related facilities such as the Internet and procurement of computers is rather slow in some instances, and in others there are no aids or support by the government at all (Albirini, 2006).
iv. Inconsistent electric power supply in most of the parts of the country and also inadequate telephone lines particularly in the rural areas.
v.   Non-inclusion of ICT programmes in teachers' training curricula and/or at the basic levels of education. There seems to be no clear and definite policy and/or curricula for all levels of the Nigerian education system.

3. The Way Forward for Effective Integration of ICT in Nigerian Education

Despite the fact that Nigeria, and in fact most African countries, came late into the ICT world, the adoption of the Nigerian national policy for information technology in 2001 is the right step in ICT application in every sector of the nation's life and in particular in education. The policy is designed to ensure that Nigeria as a nation recognizes the strategic importance of ICT for national development. Successful application in every sector can only be assured through adequate coverage of needed areas. Identified gaps can be filled through the involvement of important stakeholders such as the teachers and the managers of education (Yusuf, 2005). Specifically, the following are some required urgent steps in addition to the ones already accepted.

i. The adoption of ICT international standards and its inclusion in the Nigerian curriculum and in particular in the teachers' education curriculum.

ii. Continuous and periodic training of teachers on computers and ICT skills acquisition.

iii. Development and training of ICT experts specifically for instructional design and development who will work in partnership with educators and teachers.

iv. Restructuring, redevelopment, and reinforcement of the Nigerian Policy for integration of ICT in the Nigerian education systems. This is because "its potential as a tool for addressing challenges in teaching and learning and as a change seems to be neglected" (Yusuf, 2005).

v. Funding government at all levels should make ICT a matter of priority, provide the funds specifically needed for the training of teachers in computer education who shall in turn be equipped with ICT knowledge and skills to teach pupils/students computer and/or ICT basics.

vi. There should be a monitoring, inspection, and evaluation division at all levels of education that will be responsible for ensuring that the ICT curricula are adhered to and that the monies allocated for such purposes are not diverted, and also to ascertain that the right equipment is procured and delivered at the appropriate time.

vii. There is a need for the Nigerian government to address seriously the issues of the erratic electricity power supply, while on other hand schools wishing to adopt the integration of ICT in their teaching learning process should as matter of urgency procure a generator that can supplement Power Holding Company (PHC) for supply of power.

viii. Above all there should be an attitudinal reorientation of expected users of the ICT related facilities so that society will be in a better position to adopt new ICT innovations such as new pedagogical methods, access to remote resources, collaboration between individuals and groups of the people in more widely diverse geographic locations, online experts and mentors, virtual learning communities home/school communities. This is because cultural perceptions seemingly have a significant impact on a teacher's adoption of ICT (UNESCO, 2000; Albirini, 2006).

4. Conclusion

From the foregoing discussion, it is clear that ICT in education is an indispensable tool in the modern teaching learning process, and so its adoption for teachers will go a long way toward the enhancement of one's teaching style. This is because issues such as good course organization, effective class management, content creation, self-assessment, self-study, collaborative learning, task oriented activities and effective communications between the actors of teaching learning process and research activities will be facilitated and enhanced by the use of the ICT, culture and the society to which teachers belong to be adjusted to meet the challenges of the knowledge economy age.

Thus for Africa, and in particular Nigeria, to make effective use of ICT for the enhancement of tertiary education environments, the various challenges that have been raised in this paper have to be addressed, by having in place an effective legal, regulatory, and policy framework that will enable the implementation of viable-learning strategies (Mutula, 2003).

5. Recommendations

The following key points may be considered as recommendations for the development of ICT driven education in Nigeria:

1. Adequate funding is necessary for tertiary education in general and development of ICT in particular. To this end, government should increase funding for the entire educational sector;

2. In addition to improved funding by the government and revenue generation drives by individual institutions, government needs to implement policies which will draw the private sector into ICT

development. Government should work with the private sector and civil society to ensure affordable and sustainable access to ICT infrastructure;

3. Tertiary-level administrators should also look beyond the state for investment in ICT. As done in China, banks and other enterprises could be encouraged to see the development of ICT in higher institution as investment targets. With adequate funding by government and private institutions including NGOs (Non-Governmental Organisations), there would be adequate provision of the required ICT infrastructure and facilities for effective academic globalization.

4. Young software developers should be trained and supported with the necessary equipment to develop nationally usable e-education software.

5. Government and Managers of Tertiary institutions should set up ICT research institutes in Nigeria. There should be linkages between Universities, Polytechnics, Colleges of Education, Research Institutes and Government agencies. In Addition, government should introduce monitoring bodies which are made up of experts in ICT development.

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