THE IMPACT OF ICT ON OPEN AND DISTANCE EDUCATION: PROBLEMS AND PROSPECTS

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Abstract
Information and Communication Technology (ICT) is playing an important part in Open and Distance Learning (ODL) to meet the requirements and expectations of the learners. ICT has various proven tools and technologies to meet the requirements of a learner at various stages of learning cycle that is the admission, learning, evaluation and finally certification as a service. The promises of information and communication technologies (ICT) have driven e-learning in transforming open distance education and thereby advancing the knowledge economy that rested on three areas: access to tertiary education and learning; improving the quality of education; cost reduction. This paper looks at the impact ICT has created in open and distance education, the inherent problems and what it holds for the future.

Introduction
Improving the development of a knowledge society through open and distance education is one of the tactics increasingly adopted in recent times by governments around the world who want to encourage economic development at the local, state and national levels. Researchers (Howell, Williams & Lindsay, 2003) have shown that distance education programs in particular are growing in importance as centers for the development of knowledge. This has led several countries, notably those in the west to develop strategies to encourage this effort aimed at providing people
who do not have the opportunity to attend conventional institutions of higher learning (Ololube, 2006b; Ifinedo & Ololube, 2007). However, despite advances in information and communication technology (ICT), colleges and universities in Nigeria are posed with complex problems especially in their distance education programs in reaching the goal of promoting the development of a knowledgeable society.

**What is Distance Education**

Distance education, also called open or distance learning, is a form of education in which there is normally a separation between teachers and learners. Thus, it incorporates the printed and written word, the telephone, computer conferencing or teleconferencing to bridge the physical gap between the instructor and the learner. Distance education provides educational opportunities to those who otherwise would have been denied. Improving the quality of education through the diversification of contents and methods and promoting experimentation, innovation, the diffusion and sharing of information and best practices as well as policy dialogue are UNESCO’s strategic objectives in Education (UNESCO, 2002, 2005).

By itself, the information and communication technology (ICT) literacy rate has become a key tool that has revolutionized how we see the world and how we live in it. ICT literacy is the capability (knowledge, skills and aptitude) of a person to identify, search effectively and present specific information in order to build knowledge and develop critical and creative thinking pertinent to a field of study. This phenomenon has given birth to advances in our ways of life.
ICT is having a revolutionary impact on educational methodology both at conventional and distance education levels globally. However, this revolution is not widespread and needs to be strengthened to reach a larger percentage of the population. Therefore an interdisciplinary and integrated approach is very necessary to ensure the successful development of Nigeria’s economy and society (Mac-Ikemenjima, 2005).

The academic landscape in Nigeria includes the teaching and learning process, along with the educational programs and courses and the pedagogy or methodology of teaching; the research process, including dissemination and publication; libraries and information services; higher education administration and management, and distance education programs (Beebe, 2004).

According to the national policy on education, Federal Republic of Nigeria (1989), higher education refers to the post-secondary section of the national education system which is given in Universities, Polytechnics and Colleges of Technologies including such courses given by Colleges of Education, Correspondence Colleges and such institutions as may be allied to them. The terms of references for these institutions of higher education as indicated in the national policy on education are:

- Poor economic situation
- Insufficient funding
- Poverty
- Low Literacy Rate
- Problems with Electricity
- Poor Telecom Facilities
- Poor Postal Services
- Poor Internet Access
Importance of Distance Education

The Importance of distance education cannot be far fetched. Some of them are as follows:

- The acquisition, development and inculcation of the proper value-orientation for the survival of the individual and society.
- The development of intellectual capacities of individuals to understand and appreciate their environments.
- The acquisition of both physical and intellectual skills which will enable individuals to develop into useful members of the community.
- The acquisition of an objective view of the local and external environments.

The Federal Republic of Nigeria (2004) through its national policy on education detailed that the goal of distance education should be to:

- Provide access to excellent education and equity in educational opportunities for those who otherwise would have been denied.
- Meet the special needs of employers by instituting special certificate courses for their employees at their work place.
- Encourage internationalization especially of tertiary education curricula.
- Restructure the effect of internal and external brain drain in tertiary institutions by utilizing Nigerian experts as teachers regardless of their locations or places of work.
Thus, the federal government is convinced that for higher education to make optimum contributions to national development, ICT is an essential ingredient though the integration of Information and Communication Technology (ICT) in distance education programs in Africa has not been encouraging and has been the topic of a good deal of debate globally (Ololube, 2006b).

**ICT IN DISTANCE EDUCATION**

In Nigeria, the relationship between the development of ICT penetration and use in distance education programs and its diffusion into the programs in higher education in general is dependent upon government policies. The ICT Policy resource for Nigeria was provided for planning, research and evaluation purposes. The policy is aimed at addressing innovation, entrepreneurship, development problems/strategies and the digital divide in Nigeria. While ICT has much to offer, it has failed to deliver on that front. A lot of time and effort has been invested in developing the policy, and its implementation has failed (Ololube, Ubogu & Ossai, 2006). The Nigerian government’s policy and capitalization of higher education to enhance distance education is nothing to write home about. Instead, it maintains the traditional position of paying lip service or little attention to empowering higher education and distance education. Thus there are no clear ways of effectively funding, monitoring and controlling, and policy implementation as a way of ensuring that standards are met (Ifinedo, 2005; Ololube, 2006a).

It is clear that formal education is playing an increasing role in the competitive market in the global economy (Zajda, 1995). As such, distance education should endeavour to ensure standardization and uniformity in meeting the global trends in the highly competitive demand for excellence in distance education programs aimed at producing highly qualified manpower.
Governments in Africa should embark on a comprehensive program of recapitalization of higher education and should move from the traditional position of paying lip service or little attention to empowering higher education and distance education programs to a pro-active stance by funding, monitoring and controlling their implementation as a way of ensuring that standards are met.

Accordingly, there is the need to better design distance education curriculum and infrastructure as well as organize programs so that management and students can better plan for unanticipated and unintended results that confront them as they operate. ICT plays a key role as enabler to help us better manage the complex information flow and integrate such information towards effective policy formulation and planning in order to achieve the utmost maximization of human capital and potential in society. Thus, it involves the development of effective and integrated tools as well as training modules to enable their application through effective distance education agendas (Mac-Ikemenjima, 2005).

However, there is hope for Nigerian ICT and distance education improvement following China’s launch of a communications satellite for Nigeria, a first for an African country and the first time China has provided both the satellite and the launch service. The Nigerian Communication Satellite (NIGCOMSAT-1) is a super hybrid geo-stationary satellite that will provide communications services for Africa, parts of the Middle East and southern Europe.

Experts estimate that the satellite will revolutionize telecommunications, broadcasting and broadband multimedia services in Africa. They say it will help create thousands of new jobs and IT professionals and provide Internet access to
remote villages. It is also expected to improve ecommerce and government efficiency by promoting the development of the digital economy in Nigeria and the rest of the African continent.

Security In Open Distance Learning

In open distance learning, many online learning and support services are made available to its learners and other public. As usage of services is increasing day by day, at same time hackers/attackers are playing a vital role to deny the service and damage system resources. Security is essential to protect the resources from hackers and in turn protect the sensitive information and data. Hackers take advantage of different security flaws in a network service, hosting infrastructure and exploit the vulnerability to compromise the system. The following are various security flaws by which a hacker will play a role:

- Lack of proper hardening of Servers
- Insufficient network boundary security controls
- Flaws or bugs in application/service software
- Insecure design and coding of hosted software (OS, application, etc)
- Weak passwords
- Social engineering
- Lack of operational control

Security of a system/service/data shall be ensured by protecting the sensitive resources at network, system and the application/service domains. Some of the security parameters are authentication, access control, availability, confidentiality, integrity and non-repudiation. Violation in any of the parameter leads a breach in security. All these security parameters to be enforced along with security policy on the ICT infrastructure being used in open distance learning. The following are
some of the policies to be framed and implemented for smooth functioning of ICT infrastructure in open distance learning system:

- Network security policy
- Host/Server security policy
- Application software security
- Database security
- Content management policy
- Web server logging policy
- Backup a policy
- Password management policy
- Encryption policy
- Audit, Incident handling and Recovery policy
- Physical security policy

**CONCLUSION**

It is true that ICT is playing a vital role in open distance learning but at same time there are many issues and challenges that are to be addressed for smooth functioning of various online services that are to be implemented for its learners and other public. In this paper, the required ICT infrastructure and various issues and challenges in usage and setting up of ICT infrastructure in open distance learning are addressed. The institution that is providing education in ODL mode should look at all the addressed issues and challenges and take necessary precautions with a proper action plan along with timeframe.
References


Oloolube et al.


