



Information and Communication Technology in Nigeria Higher ... (Evanero, et.al. 2021)

Information and Communication Technology in Nigeria Higher Education: Prospects and Challenges

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Abstract

The study investigated Information and Communication Technology (ICT) in Nigeria higher education with reference especially to its prospects and challenges. Information and Communication Technology (ICT) is one of the most efficient tools in advancing knowledge and skills. It is necessary for assuring quality education in Nigeria higher education. This study reviews the concepts and roles of Information and Communication Technology (ICT) in Nigeria higher education. It highlighted the problems facing ICT in higher education in Nigeria as well as its numerous and diverse prospects if efficiently harnessed. The study recommended that adequate funding should be allocated and disbursed to higher schools for proper financing and maintenance of ICT appliances and the government should make the teaching of ICT a free and compulsory part of the curriculum so as to provide students with practical and functional knowledge of computers, the internet and associated areas of ICT.

Keywords: Information and Communication Technology, Problems, Prospects, Higher Education in Nigeria



Introduction

Information and Communication Technology (ICT) has become, within a very short time, one of the basic building blocks of modern society. ICTs have successfully changed the social, economic and political space globally. Through globalization, ICTs have reduced the world to a global clan. Globalization has assumed a cyclopean force driving human civilization by the scruff (Imhonopi, Urim, & Igbadumhe, 2013; Imhonopi & Urim, 2011a, 2011b; Imhonopi & Urim, 2011). Similarly, ICTs have enabled the globalized world become greatly interconnected, interdependent and without borders (Salawu, 2008). ICTs are changing the world rapidly, creating a distance-less and borderless world of instantaneous communication (Spence & Smith, 2009). Increasingly too, ICTs are becoming more affordable to those Collier, in Spence & Smith (2009), tag the “bottom billion” or “next billion” or “bottom of the pyramid”, thus empowering the world’s poorest and offering them, at the same time, massive opportunities and possibilities that were considered (Imhonopi, Urim, & Igbadumhe, 2013). In this instance, mobile phones, laptops, tablets, iPads, internet services and other ICT tools/services are no longer premium goods affordable only by the elites in the society. In Nigeria, and other African countries, mobile phones and new technologies like iPads, notebooks and tablets are now used by low-income earners with even beggars on the streets clutching onto their mobile phones. The impact of ICTs has virtually diffused through all sectors, forcing technological changes and creating a culture of dependence on technology. In Nigeria, the presence of ICTs has become ubiquitous and its knowledge has deepened. Many countries now regard the understanding of ICTs and mastering of their basic skills and concept as part of the core of education, alongside reading, writing and numeracy (UNESCO, 2002). ICTs have also permeated the business environment, underpinned the success of modern corporations, strengthened value chains and provided governments with an efficient infrastructure for e-governance and e-citizen interface. Additionally, ICTs add value to the process of learning, and organizes and manages learning institutions across the spectrum. ICTs have been reported to have played a great role in redefining education across the continuum (from the core to the periphery). It has brought massive regeneration and invigoration to teaching, research and learning and enhanced teacher-student interface by creating multiple channels of interaction.

Concept of Information and Communication Technology (ICTs)

According to Garai (2006), ICTs cover internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network-based information services, and other related information and communication activities. For Chowdhury (2000) and Imhonopi & Urim (2009), ICTs also encompass technologies that can process different kinds of information (voice, video, audio, text and data) and facilitate different forms of communications among human agents, among humans and information systems, and among information systems. Broadening this conversion, Imhonopi & Urim (2012) argue that ICTs are modern technologies that facilitate information gathering, processing, transmission and storage and comprise hardware and software components that can be put to heterogeneous use through digitalization connecting individuals and institutions over wide swathes of a geographical area. They further assert that the emergence of ICTs has provided the means for faster and better communication and utilization of information between and for users, be they individuals, groups, businesses, organizations or governments.



Concept of Higher Education

Education has remained at the top of the development agenda in Nigeria. On one hand, basic education in Africa is championed by Education for All (EFA) and the Millennium Development Goals (MDG) as a key factor the reduction of poverty while the World Bank and other international organizations under the World Conference on Higher Education (WCHE) have given greater recognition to the critical role of higher education in building the knowledge economy and enhancing economic development in Africa (Mohamedbhai, 2008). This has put higher education on the top of the political and economic agendas of most, if not all, African countries. Simply put, higher education refers to the universities in some contexts, but generally the term represents post-school, post-higher or tertiary institutions and includes roles played by other more vocationally or technologically oriented institutions. According to Mohamedbhai (2008), although higher education and tertiary education are often used interchangeably, the term “higher education” represents all forms of organized educational learning and training activities beyond the higher level. These may be at universities, polytechnics, training colleges as well as in all forms of professional institutions, among others. Higher education has been seen as a critical component of human development indices and a key driver to economic and national development of countries. Therefore, higher educational is relevant to human development, capacity development and it plays an important role in providing high-level manpower in areas pertaining to social and economic development and in promoting research. The World Bank (2002) affirms that tertiary education is essential for the facilitation of nation building and also for the promotion of greater social cohesion, inspiring confidence in social institutions, as well as encouraging democratic participation through open debate. Higher education also brings about an appreciation of diversity in gender, ethnicity, religion and social class.

Significance of ICTs in Higher Education in Nigeria

The use of ICTs within the academia has become a modus vivendi for modern academics and students so much that there is an inextricable intertwinement between ICTs and academic processes within higher educational institutions in Nigeria. A closer look at the significance of ICT tools in higher education in Nigeria reveals the following:

- 1. Collaborative Research:** The distance-less and borderless nature of the internet has also help in empowering collaborative research between and among researchers/academics living and working in far-flung continents. Nowadays, collaborative research works between African scholars and scholars living outside the continent are made possible. In the same vein, even within the African continent, scholars carry out transnational collaborations involving nationals of different countries within the continent. This brings robustness, freshness, diversity of thoughts, opinions and perspectives to bear on the outcome of such works. By such collaborations also, the international intelligentsia will pay more attention to research works coming from the continent and make use of these materials to further extend the frontiers of the global pool of knowledge (Toyo, 2017).
- 2. Digitalization of School Processes:** As part of the push for a green economy, higher educational institutions in Nigeria willy-nilly are forced to imbibe digitalization as a global best practice. Nowadays, application and admissions into higher institutions in the country are conducted through online processes and these include payments, registration, admission, confirmation of acceptance and publishing of information for stakeholders. Similarly, e-



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communication channels are gradually replacing face-to-face communication processes and these make for speed, ease and time-saving advantages. Digital papers are also replacing physical papers which take up space and create environmental eyesore when they are being disposed. Also, physical libraries are gradually giving way to the emergence of e-libraries. Thus, higher education in Nigeria is not left behind in this regard (Toyo, 2017).

3. **E-Conference:** The country's higher education is increasingly centered on leveraging the advantages of e-conferencing. Through this phase, resources for distant learning can be developed or maintained, and wide-ranging research teams can meet discuss or exchange findings that improve the quality of the research results. E-interview is another feature of this use. For example, a few universities, such as Covenant University have started using online interviewing to engage the services of Nigerians and foreign academics who live outside the country's shores. E-recruitment and e-HR Management are analogous to this (Toyo, 2017).
4. **E-learning tools (including web 2.0):** According to Imhonopi & Urim (2011), there are many e-learning tools, which are increasingly becoming the standard in and for higher education in Nigeria. These include online resources, tools, software, and platforms that enable language teaching and learning both inside and outside of class. They include the internet. Blogs, e-groups, SMSs, socializing portals, e-dictionaries, e-encyclopedia, audio, and video clip power point presentations, webcasting, and audio-video material. Others include teleconferencing (text, video, and audio conferencing), virtual television, digital satellite television, audio graphics, online charts, newsletters, wikis, podcasting, electronic portfolios, conference updates, and WebQuests (Toyo, 2017).
5. **Cooperative learning:** The internet promotes collaborative learning, fosters discussion, and creates a more interactive classroom. For example, a LISTSERV for a class will allow students to get involved in classroom discussion through e-mails in a way that is not possible within the classroom's four walls (<http://miraesiwinaya.wordpress.com/,2020>).

The Problems Facing ICT Higher Education in Nigeria

The problems of ICTs that is facing higher education in Nigeria are as follows:

1. **Low income groups:** According to the US Department of Education, more than 50 percent of high-minority public schools had a lower internet access value than low-minority public schools in 1997. In these colleges, the same was true of instructional spaces. Additionally, students from low-income families may not have home computers or may have personal computers with no internet access. Consequently, students in low-income communities may be disadvantaged. We can offer internet assignment that students can easily complete while in college to reduce the impact that social and economic status can have. Colleges may need to keep computer labs open for longer and/or odd hours where necessary. Also encouraging the use of computers in public libraries (Yuen et al, 2003).
2. **Infrastructure shortage represents another challenge for higher education in Nigeria.** There are mountains of evidence showing that current higher institutions in the country lack the necessary physical classroom, teaching and learning facilities, and modern ICTs that could help them conduct processes of teaching, learning, and study in a clement environment. For this reason, for example, the Academic Staff Union of Universities is always o strike to draw the attention of the government to the sorry plight of Nigerian Universities. Until the deficit in



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infrastructure is arrested, higher education in the country can continue to decline (Toyo, 2017; Yusuf et al, 2013; Yuen et al, 2003).

3. **Irregular power supply:** Epileptic power supply throughout the country has become so worrisome. If electricity supply is not reliable and continuous, it is difficult to maintain the proper functioning of ICT equipments and facilities such as computers and their accessories. This issue also denies the value of using ICT to the rural population (Yusuf et al, 2013; Yusuf et al, 2013).
4. **Cost of equipment:** The cost of equipment in a country like Nigeria with a broken economy is very high. Other costs associated with peripherals such as printers, monitors, documents, modems, extra disk drives, and other devices are beyond the scope of higher institutions in Nigeria, in addition to the basic computers. Even most of these institutions cannot escape the exorbitant internet access fees (Yusuf et al, 2013).
5. **Computer illiteracy:** Many staff in the Nigerian tertiary institutions are not ICT computer literate and it is disappointing in the digital modern era (Idowu et al, 2017). As it is believed that practice makes perfect, most of the teachers that studied computer applications or undergoes computer training but without continuous practice is as good as nothing. According to Anene et al (2014), illiteracy in this current age of ICT boom is really a great threat to any establishment, let alone of an educational institution whereas almost all human activities depend on ICT. It is interesting to note that ICT is actually more important in tertiary institutions than most organizations. Within Nigerian tertiary institutions, specifically academic staff need ICT for their numerous tasks which include students' assessments, examinations and records, administration for managerial purposes, design and development of tertiary institution website (Beda et al, 2012). Many lecturers in Nigerian tertiary institutions have never used computer their lives and as such they are terribly shy when they are confronted with this new technology and the terminology related to using them (Ajegbelen, 2016).

Problems of ICT in Tertiary Institutions

Tertiary institutions are designed to create quality workforce by growing, training, and attracting the finest talents; support current business and industry, improve learning and teaching from pre-school through graduate school; take strong and visible roles in regional initiatives, disseminate research and employ a diverse workforce (Myamoto, 2010). The use of ICT in educational settings will act as a catalyst for change in this domain. We are in the world of technological development, functional and qualitative education, which are viewed as a necessary condition for national qualitative education, as a necessary condition for national development that cannot be achieved without sound knowledge of Information and Communication Technology (ICT). Gbadamosi (2006) identifies ICT as a factor that promote quality in higher education. Moreover, communication is a fundamental act of the education process. Therefore, to enhance quality, attention must be given to ICT. Indeed, the impact of Information and Communication Technology is becoming more and more pronounced worldwide such that rarely is anything mentioned in any area of human endeavor without reference to this technology. Without doubt, the development of ICT is truly phenomena and unique in history (Akubuilu, 2007). Information and Communication Technology is a force that has changed many aspect of the way people live. Information is a key resource for undergraduate teaching, learning, research, and publishing. This brings the need for effective method of information processing and transmission (Nwosu &



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Ogbomo, 2012). This has paved the way for change not only in the way society assesses knowledge but also transform and restructure traditional models of tertiary education. Information technology is one skill area that is now essential for young people to gain a foot hold in the labour market in developed and increasingly in developing countries (Laura & Brown, 2005). Presently, higher institutions of learning have been focusing on e-learning environment and much less on traditional methods as a result of the newly acquired capacity for students and teachers to have access to the internet any point in time. ICT also help teachers and students become actively engaged together in online collaborative work to enhance traditional learning methods (Oliver, 2011). According to Nwankwo (2013), Information and Communication Technology (ICT) has permitted people to participate in a world in which school, work and other activities have been increasingly enhanced by access to varied and developing technologies. ICT tools have helped people find, explore, analyze, exchange, and present information most importantly, without discrimination. When efficiently use, ICT can provide quick access to ideas and experiences from a wide range of people, communities and cultures (Kwame, 2010). ICT involves the development of effective and integrated tools as well as training modules to enable ICT application through effective teaching and learning. These according to Nwankwo (2013) can be felt in the following aspects: Promotion of better quality research is made possible through ICT. Application of ICT is particularly powerful and uncontroversial in higher education's research function. The steady increases in bandwidth and computing power available have made it possible to conduct complex calculations on large data sets (Balasubramanian, 2009). Analyzing (process of huge amounts of data can now be done extremely fast, accurate and reliable, thus, reducing the burden of manually analyzing data which hitherto was very difficult and cumbersome.

Another important measurement of ICTs in research is the use of online full text data bases and online libraries/virtual libraries which are the direct outcome of the growth in telecommunications networks and technology. These databases and libraries provide researchers with online access to the contents of hundreds of thousands of books from major publishing houses, research reports and peer reviewed articles in electronic journals. Examples includes; the Questia online library which provide access 24/7 to the world's largest online collection of books and journals in the Humanities and Social Sciences. There is also the online Book page hosted by the University of Pennsylvania libraries which provides free online access to books which includes an index of thousands of online books, links to directories and archives of online texts.

E-registration of courses and details of examination and other services are being offered online, thereby, reducing pressure during course registration. With the use of ICT, students pay school fees online and check their results after every examination. Moreover, the use of the internet could reduce administrative cost because the same information can be sent to all Departments through the internet without having to do it individually. Therefore, communication both within and outside the department is a lot easier with the use of the internet.

In addition, open and distance learning are defined by the common wealth of learning opportunities that are characterized by the separation of teacher and learner in time or place, or both time and place; learning that is certified in some way by an institution or agency, the use of a variety of media, including print and electronic, two way communication that allows learners and tutors to interact, the possibility of occasional face to face meetings and specialized division of labour in the production and delivery of courses. The National Open University (NOUN) was established to provide for the educational needs of people aspiring for university education. The



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instrument offers opportunities for these students who are unable to reside on campus because of their job or other engagements as the case may be through different devices of information and Communication Technology.

Conclusion

This study has highlighted the fact that higher education in Nigeria need ICT education, especially in contemporary Nigeria where greater emphasis is being placed on industrial and technological development. The possession of knowledge and competence in ICT is imperative for higher system in the teaching-learning process. Information and Communication Technology (ICT) is a powerful tool for enhancing practical and functional education in higher schools. Here, students should be taught to utilize electronic tools (computers, internet connection, skills and other ICT equipment) and other ICT associated facilities. Therefore, if higher schools can view the acquisition of ICT skills as worthwhile, the teaching-learning process will be more effective. This will promote the achievement of the goals and objectives of higher education in Nigeria.

Recommendations

It is worthy to note that successful use of ICT as a stimulant to higher education in Nigeria depends to a large extent, on the supportive policy of the three tiers of government (the executive, the judiciary, the legislative). Therefore, the following recommendations are made to promote and improve the development of ICT education in Nigerian higher schools:

1. Adequate funds should be allocated and disbursed to higher schools for proper financing and maintenance of ICT appliances.
2. Adequate infrastructures/resources should be provided across all the higher education institutions in Nigeria as this will encourage the learning of ICT.
3. Government should formulate and implement functional policies that will address the problems of ICT education in higher school curriculum. This should be accompanied with essential instructions and adequate training of skilled manpower.
4. There is need for the government at all levels, non-governmental organizations (NGOs) and philanthropists to invest in the development of ICT in higher schools by providing adequate human and material resources.
5. Power supply in the country is epileptic. ICT operations require constant electricity for its maximum use. Therefore, power supply should be massively increased, improved and worked upon so as to enhance the use of ICT in higher schools.
6. The government should make the teaching of ICT a free and compulsory part of the curriculum so as to provide students with practical and functional knowledge of computers, the internet and associated areas of ICT.

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