An Analysis of ICT impact on the Curricular of Major Nigerian Universities in the Last Ten Years 2003-2013

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ABSTRACT

University Education has come of age and reached the point at which information and communication technology (ICT) forms the nucleus of its existence in all phases of its processes. ICT and its application have emerged into education and higher institution of learning as a driving force for development. This study focuses on the Analysis of how ICT impacted on the curricular of major Nigeria universities in the last ten years (2003-2013). The study also took a critical look at the emergence of ICT and the development stages in Nigerian university. It also showcases the effect and impact of ICT on University curricular and also some challenges facing the proper diffusion of ICT into Nigerian universities.

A combination of ex-post facto and document material for data gathering was employed as a methodology for this study. The outcome of study shows that ICT really have really impacted positively and progressively on Nigerian universities curricular. And a recommendation was made at end of the study.

Keywords: *ICTs University Education, Curricular, Nigeria*

I. INTRODUCTION

In Nigeria and the world over, the system of education and its operations have been swept by the pressure on the need for the application of information and communication technologies (ICTs). The pressure has been found to be brought about due to the inevitable changes and needs brought about by the use of ICTs in the university system, classroom, teaching, learning and even teachers' training.

Information and communication revolution is sweeping through the world and the gale has even caught up with the education sector. Introduction of ICTs into the universities has brought about serious changes and improvement in the method of teaching and even the course of study and this is in collaboration with the introduction of education facilities for online learning, teaching and research method. Many Nigeria universities and their administrations today see the importance and need of information and communication technologies as necessary in the process of teaching and learning. It is very important to note that the advent of ICTs into the education system has given rise to new modes of organizing courses, administration and university management, and even educational environment in schools and new concepts in teaching process as well a the remodeling of the roles played by the participants in the educational process.

Because of this evolution of ICTs into the education sector, there have been great changes in the university system. And this change demands that management, staff and students will have to follow this trend by developing and acquiring the knowledge

of ICTs so as to meet up the international standard. And this requires the ability to become lifelong learners within a context of collaborative and the ability to learn from experts and move on with peers, social communities and the world at large through the available internet.

Nigerian university system has come along way with information and communication technology and its application and this has given education system a new dimension and focus. This is as a result of e-learning, distance education and Open University system a possibility in our country Nigeria, and even students in Nigeria having to study with open universities all over the world without necessarily being in those countries. Little wonder Tinio observed that the Indira Gandhi, National Open University in India combines the use of pre-recorded audio and video broadcast radio and television and audio conferencing technologies. Information and communication technologies have made a great impact on the quality and quantity of teaching and learning. The introduction of ICT usage, integration and diffusion has initiated a new age in educational method of information as well as offering contemporary learning experience for both instructors and students.

II. NIGERIAN UNIVERSITY AND ICTs; THE JOURNEY SO FAR

The journey started in the year 1948 when the university college Ibadan was established as a college of the University of London. In 1962 the college attained full autonomy. subsequently in the next few years the university of Nigeria Nsukka was established precisely 1960 and between 1962 and

1970, four other universities were established in Nigeria and they include the university of Ife now known as Obafemi Awolowo University, Ahmedu Bello University Zaria, University of Lagos and University of Benin.

In 1970, the mid west state (formally mid west Region now Bendel state) which was carved out of the western Region establishmed the mid-west institute of technology (M.I.T) the institute converted to a university status. The university of Benin in 1972 and was handed over to the federal government in 1975. The third national development plan (1975-1980) made provision for the establishment of seven more universities to be located in states where there were none at that time. This gave birth to seven sisters or second generation universities in 1975. The universities were established as follows:

1. The University of Calabar which began as Calabar campus of the University of Nigeria in 1973.
2. The university of Jos founded as a campus of the University of Ibadan in 1975.
3. University of Maiduguri in 1975.
4. University of Ilorin which was a former campus of the university of Ibadan but became a full-fledged university in 1977 after becoming university college in 1975.
5. University of Sokoto in 1975.
6. University of Port-Harcourt which took off initially as a university of Lagos and in 1977, it became autonomous as a full-fledged university.
7. Bayero University, Kano which started as Northern government owned, Abdallahi Bayero College in 1961 became Bayero University college of Ahmadu Bello university in 1962 and a full university on 1st.

The 1979 constitution of the federal Republic of Nigeria placed university education on the concurrent legislative list. That meant that apart from the federal government, sate governments who wished could establish their own university as was put on exclusive legislative list by then military government. Between 1979 and 1983 the following eight state university were established.

1. Bendel state university Ekpoma 1980.
2. Anambra state university of technology Enuge, 1980
3. Imo state university 1981
4. River state university of Science and technology Port-Harcourt 1981.
5. Ondo state university Adoekiti 1982.
6. Ogun state university Ago-Iwoye 1982.
7. Lagos state university Badegry 1983 and
8. Cross River state university Uyo 1984.

In 1988, the federal government announced the establishment of university of Abuja. Other federal Universities established since then are:

Tafawa Batewo University Banuchi, Federal university of Technology Akure, University of Agriculture Markurdi, University of Agriculture Abeokuta, Federal university of Technology Yola, Federal university of Technology Minna., Federal university of Technology Owerri.

Thus, altogether, Nigeria has at December 1989 twenty federal universities and eight State University.

Since then, the social demand for University education among the people led to a considerable expansion in the establishment of university in the country while as at 2005, the number of public Universities has risen to 57 (Federal Ministry of Education 2005.)

One major observation during the early stages of university education in Nigeria was the little emphasis on the development of ICTs; computers were in short supply to the institutions. Where they were available they were the old type of IBM computers (Akopta 1999) in Adeyemi (2011) communication gadgets were also in short supply such things like telephones and intercom services could only be seen in few offices. Technology material for effective communication were not common and also it was recorded that the use of compact disc started in the 1990s while the use of handsets started in 2003 (Federal Government of Nigeria 2004).

Meanwhile in the year 1987, about the time that a department of records and statistics that was to culminate into the Department of ICT was being conceived in the National university commission (NUC) an idea of a management information system (MIS) for Nigerian universities was being conceived during a conference jointly organized by the NUC and the British council in Kaduna. The conference recommended the introduction of M.I.S because of the difficulties encountered in data collections processing and storage in Nigeria University and the need for modern data approach to university management practice. The aim of the project is to develop a viable computerized MIS so as to maximize the effective use of resource consequently, it is envisaged that it will assist management and indeed operating personnel, by producing timely and accurate information not only to plan and control present and future operations need also to pinpoint potential problems that need to be rectified. The project is designed to make maximum use of expertise system and executed with Nigeria needs and condition in mind.

In 2010, the commission came to a realization that it can not produce globally competitive graduate and viable research services and delivery. In essence, in September 2010, there was a rebirth of the ICT department making the data information unit a division with two units; data base administration and management and system Analysis and Design.

III. LIST OF SOME MAJOR UNIVERSITIES IN NIGERIA.

From the analysis on the history of University in Nigeria, one can easily note that the country has been filled with many public and private, state and federal institutions. But this study will base its analysis on major universities that form the back bone of Nigerian's educational system and these universities include.

University of Ile-ife (Obafemi Awolowo), University of Nigeria Nsukka, Ahmedu Bello University Zaria, University of Benin, University of Calabar,

Obafemi Awolowo University which was established between 1962 and 1970 was one of the first four universities to be established in Nigeria. This university was recently branded Nigeria's foremost ICT university because in 1998, it became the first University to establish an independent satellite link to the internet (idowu etal 2004) as at then the university was the only institution that has fully installed internet facilities available to both staff and students mainly for academic or research purposes within the confines of the large campus.

OAU has institutional computer support service. Hezekiah Oluwasanimi library which is the main library at Obafemi Awolowo University Ile-Ife has an ICT unit. The unit has system librarian and a system technologist. The ICT section in the library is able to under take day-to-day technical and managed, maintenance, thus, the library has an e-library for students which have been there for some time.

Second is the University of Nigeria Nsukka. The management of this institution have provided it with e-library and almost all the departments and faculties have a course of study that is related to ICT in one way or the other. The library system is on the road to become a victual library, such that one can have access to works, -e-books, materials and school administration by logging into the school portal.

Worthy of mention is the continuous training, seminar and even workshops organized for both lectures and students to update their knowledge on the use of ICT and numerous application to teach student and also the use of e-mail for submission of seminar and research work or even to meet and have contacts with resources persons, professors lecturers and fellow students.

IV.   IMPACT OF ICT ON NIGERIAN MAJOR UNIVERSITIES CURRUCULA

The emergence of information and communication technology into Nigeria universities clearly changes the way education is conducted. The evolution of ICTs into universities have made it possible to work with distance learning and achieve a closer collaboration between different universities, lecturers, professors and even students now share ideas, conference and even have lectures online from different universities and countries, this has paved way for a new teaching approach where there is unparallel ability to spread knowledge and also disseminate information.

Academic global community will utilize ICTs to a higher degree. This has made it imperative that students not only need to use ICTs but they need to become comfortable with using them. This is to ensure that students participate fully in this contemporary information age.

Information and communication technology (ICT) and national policy on ICT intends to provide a basis for redefining and re-

developing of the Nigerian national policy on information technology (federal Republic of Nigeria 2001). The document mission statement recognized the need to use information technology for Education in addition, the general objectives in three (xv, xvi and xxiv) of the 31 stated objectives stressed that information technology must be used to:

1. Empower the youth with IT skills and prepare them for global competitiveness.
2. Integrate IT into the mainstream of education and training.
3. Establish new multifaceted IT institutions as centers of excellence to ensure Nigeria's competitiveness in international markets (pp.iv-v).

In order to achieve these objectives 20 strategies were outlined. The fifth strategy was stated this way:"Restructuring the education system at all levels to respond effectively to the challenges and imagined impact of the information age and in particular, the allocation of special IT development fund to education all levels" (PVI) It went further to list its objectives to include:

1. Making the use of ICT mandatory at all levels of educational institution
2. Development of ICT curricular for primary secondary and tertiary institutions,
3. Use of information and communication technology in distance education.

Information and communication technology are advances in technologies that provide a rich global resources and collaborative environment for dissemination of ICT literacy materials interactive discussion, research information and international exchange of ideas which are critical for advancing meaningful educational initiatives, training high skilled educators and understanding issues related to academic development. ICT have the potential for increasing access to and improving the relevance and quality of education. It thus represents potentially equalizing strategies for developing countries. ICT greatly facilitate the acquisition and absorption of knowledge, offering university's unprecedented opportunities to enhance educational system, improved policy formation and execution and widen the range of opportunities to empower the poor countries.

The introduction of ICT and its effect on university curriculum could equally be seen in the enhancement of active learning. ICT-enhanced learning mobilizes tools for examination, calculation and analysis of information, thus providing a platform for student's inquiry, analysis and construction of new information. Learners therefore learn as they do and, whenever appropriate, work on real life problems in-depth, making learning less abstract and more relevant to the learner's life memorization-based or rote learning, ICT enhanced promotes increased learner engagement. ICT-enhance learning are also just-in-time learning in which learners can choose what to learn when they need to learn it.

As mentioned earlier, ICT encourages collaborative learning and interaction among students and lecturers and even experts regardless of where they are. Apart from modeling real-world interactions, ICT has provided learners the opportunity to work with people from different cultures thereby enhancing learners' teaming and communicative skills as well as their global awareness.

V.   IMPACTS OF ICT ON UNIVERSITIES CURRICULAR

ICTs are altering the functions of libraries and changing the role of librarians: with a wealth of learning resources on the internet, some of which are freely available, librarians are becoming information manager or cyber masters, communication technology are advances in technologies that provide a rich global resources and collaborative environment for dissemination of ICT literacy materials interactive discussion, research information and international exchange of ideas which are critical for advancing meaningful educational initiatives, training high skilled educators and understanding issues related to academic development. ICT have the potential for increasing access to and improving the relevance and quality of education. It thus represents potentially equalizing strategies for developing countries. ICT greatly facilitate the acquisition and absorption of knowledge, offering university's unprecedented opportunities to enhance educational system, improved policy formation and execution and widen the range of opportunities to empower the poor countries.

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Anytime, anywhere one defining feature of ICTs is their ability to transcend time and space. ICTs make possible asynchronous learning, or learning characterized by a time lag between the delivery of instruction and its reception by learners. Online course materials, for example, maybe accessed 24 hours a day, 7 days a week. Due to the introduction of ICT in education the National University Commission (NUC) has made it compulsory for all department in the university to pick up an ICT course at all levels. Also is the National policy on ICT, this introduction has really changed the scope and style of university curriculum of study and activities. It is also important to note that because of ICTs, many courses are now offered in Nigerian Universities. Recently, there is an increment in the number of courses offered by the department of mass communication university of Nigeria Nsukka as against the 2005 curricular where and course schedule where five courses were offered per semester. In this added courses, ICT was one and the most important one.

ICTs have also broken the barriers of distance in knowledge acquisition, with the advent of ICT and its subsequent diffusion in universities in Nigeria. Interactive electronic communication between two or more people from different geographical locations is now used in teaching and exchange of ideas either inform of a conference, symposium,, seminar or lecture. This technology known as video conferencing is already implemented as one of content of university curriculum. An example is its implementation in Obafemi Awolowo University (OAU) Ile Ife as well as the National Open University of Nigeria (NOUN) which has various campuses situated across the country. This technology has become a deriving for educational reform and change in the curricula of most universities which adopted ICTs, it has trade possible for teachers and learners and even professionals to connect better to information, ideas, and each other via effective combinations of pedagogy and old and new technologies. ICTs for teaching and learning under go at least three phases.

1. A substitution phase where traditional teaching occurs with the use of new technologies
2. A transition phase where new teaching and learning practices begin to appear as established practices start to be questioned.
3. Transformation phase where the new technologies enable new practices. Nigeria's universities are now undergoing the transformation in stage of this digital drive.

With ICTs in the universities there is the establishment and effective implementation of efficient institution of Distance learning; university of Ibadan, Obafemi Awolowo university and National open university of Nigeria now operate distance learning centers, where a combination of print, live and recorded broadcast as well as the internet is used to deliver course or lectures to students. At the Obafemi Awolowo University, course materials are still predominantly print-based but on-line tutorials are becoming a convent alternatives to face-to-face tutorial especially for students unwilling or unable to go to OAU'S various physical learning centers. The internet, and associated ICTs, is making it possible for various forms of cross border education including trade in education. The relevance of traditional quality assurance mechanisms is being

questioned and new mechanisms for ensuring quality in transnational education are being proposed.

With ICT, universities circular have access to remote learning resources, Teachers and learners no longer have to rely solely on printed books and other materials in physical media housed in libraries and available in limited quantities for their educational needs with the internet and the wide web, a wealth of learning materials in almost every subject and in a variety of media can now be accessed from anywhere at any time of the day and by an unlimited number of people. This is particularly significant for many institutions in developing countries and even some in developed countries that have limited and outdated library resources. ICTs also facilitate access to resource person, mentors, experts' researchers, professionals' business leaders and peers all over the world. Lectures are able to break away from professional isolation with ICTs, they can easily connect with lecturers from other countries and with sources of teaching materials. Therefore with information more readily available, learners are not dependent on lecturers and librarians for information. Learners are helping redefine the role of lecturers and librarians so learners can focus on analyzing information and sharpening their critical thinking skills. This is the current trend in the major universities in Nigeria studied for this work.

ICTs have made some Universities in Nigeria so prominent. Obafemi Awolowo university (OAU) Ile-Ife was once branded Nigeria's foremost ICT university because in 1998, it became the first university to establish an independent satellite link to the internet.(idowu, etal.2004). As at then, it was only OAU that has fully installed internet facilities available to both staff and student mainly for academic or research purpose within the confines of the large campus.

University of Nigeria Nuskka followed this trend and also established an independent network system link where staff and students have free access to internet within the confines of the university environment. This has earned a lot of integrity and prominence for these universities as far as Nigeria is concerned. Further, universities are entering into partnerships with the private sectors in order to stay current as well as to get help on maintaining operation and financial viability of ICT based education program. Example is UNN and lead city university, Ibadan.

In recent times, there has been a ground swell of interest in how computers and the internet can best be harnessed to improve the efficiency and effectiveness of education at all level and in both formal and non-formal settings. But ICTs are more than just these technologies; older ones like telephones have a longer and richer history as instructional tools.

Very important part and role of ICT in university curricular is that it has been observed that the use of ICT has promoted issues on students' admission, students' records and transcript, examination records, teaching, research and community services. The use of ICT in university curricular has also helped in monitoring and evaluation of staff physical plant planning, curriculum development financial management and information

dissemination and this has increased the level of efficiency of the universities because information and communication and technology facilities have been to some degree utilized.

VI. THEORETICAL FRAMEWORK

Technological determinism by McLuhan

This theory states that media technology shapes how we as individual in a society think, feel, act, and how society operates as we move from one technological age to another. We learn, feel and think the way we do because of the messages we receive through the current technological devices and applications that are available.

This theory argues that humans do not have much free will at all. Whatever society as a whole is using to communicate, they too will use to communicate. Therefore they will adapt to the medium they are using so that they can send and receive messages like every one else. In this case educational systems must enable the use of ICT and adapt to its application, and its provisions to education, teaching, leaning and research. This theory left no aspect of human life unaffected but in McLuhan's words "we shape our tools and they in turn shape us". Thus, ICTs somehow mould our education and university curriculum and its application in learning and teaching. ICT radically alter the formal way the universities run their programmes in this technological age.

So borrowing from McLuhan's concept of technological determinism, everything have been affected and education is not left out rather it's the focus point of ICT because ICT and education is the point on which every other sector revolves.

VII. RESEARCH METHOD

This study adopted the ex-post facto and a descriptive research of the survey types it was an expost factor research in the sense that it was an after fact or after event study. Gay, (1996) in Adeyemi, (2011). The data and effect were already in place and there was no need for the application of manipulation of variables.

It also employed the review of document materials such as articles, reports and documented works for data gathering which are believed to be valuable sources of data about educational research.

VIII. REVIEW OF SOME WORK/LITERATURE

ICT is an accepted acronym of the word information communication technology. It is a diverse set of technological tools and resource used to communicate and to create disseminate, store and manage information Blurton, (1999). This means that ICT helps in the storage and management of information computer system and telecommunications equipment in information processing. ICT as described by Scott (2002) encompass a range of applications, communications and technologies which aid information retrieval and research

communication and administration. These include: internet access, electronic mail, CD-Rom telephone, online database and library services and fax machines. It has become a global phenomena in education to make ICT of great importance and concern just like in every other aspects of human endeavour.

Tinio (2002) indicated that ICTs are a potentially powerful tool for extending educational opportunities. Both formal and non-formal to previously underserved constituencies scattered, and rural populations, groups traditionally excluded from education due to cultural social reasons as ethnic minorities, girls and women, persons with disabilities and the elderly, as well as all others who for reasons of cost or because of time constraints are unable to enroll on campus. Tinio further noted that ICT can expand access to education in the following ways.

Anytime, anywhere, one defining feature of ICTs is their ability to transcend time and space. ICTs make possible asynchronous learning or learning characterized by a time lag between the delivery of instruction and its receptions by learners. Online course materials for example can be accessed 24 hours a day, 7 days a week. ICT-based-educational delivery such educational programming broadcast over radio or television also dispenses with the need for all learners and the instructors to be in one physical location. Additionally certain ICTs applications such as teleconferencing technologies enable instructions to be received simultaneously by multiple, geographically dispersed learners.

Tinio noted further that ICTs such as videos, televisions and multimedia computers software that combine text, sound and colorful, moving images can be used to provide challenging and authentic content that coil engage the students in the learning process.

Darkwa and Anao (2004) highlighted the impacted of ICT on tertiary institutions as enhancing both academic and business research by university and polytechnic lecturers and students with the advent of internet researchers can have opportunity to access a lot of information for various assignments in more innovative ways.

Secondly, ICTs reduces administrative cost. Telephone is expensive in developing countries and many filling and records keeping is done manually. The use of the internet, intranet and extranet could reduce administrative cost because the same information on the internet can be sent to all departments without having to do it individually.

ICT has also solved the problem of cask of university and polytechnic lecturers with the current state of acute shortage of academic facility and staff facing our tertiary institution. ICT could be leveraged through video conferencing so that students on various campuses pursuing the same or similar programme/course could be linked to benefit from a lesson, which they lack lecturers simultaneously.

Ramzan (2004) observes that experts systems, wireless networks, virtual collections, interactive web interfaces, virtual reference services, and personal web portals have brought changes since the start of the new information and communication technologies.

Islam (2007) stated that the application of web based information retrieval trends of researchers is even increasing and the electronic material will eventually replace the traditional library and users need not to go there to find and collect information they need. Al-Ansari (2006) focused on the internet use by the faculty including purpose of use, impact on teaching and research, internet resources that they use and the problem faced while using the internet.

Finally Ehikhamenor (2002) stated that ICTs are changing the ways in which academics seek information, communicate with each others, conduct research and distribute research result. All those point to the fact that information and communication technologies are very important for effective development in education.

IX. HINDRANCES TO FULL APPLICATION OF ICT IN MOST NIGERIAN UNIVERSITY

This can be categorized into four as:

- ❖ Inadequate infrastructure
- ❖ Inadequate skilled manpower
- ❖ Resistance to change
- ❖ Inadequate funding
- ❖ Lack of maintenance culture.

Tertiary institutions in Nigeria lack adequate ICT infrastructure to effectively tap into the opportunities offered by the cyberspace personal computers (PCS) are available in most Nigeria tertiary institutions, but they are not readily accessible to students because of the low computer (PC): student ratio which is averagely put at about 1 to 40. In most cases, the basic software needed for practical works are not available and where they are available, they are not accessible because of the low ration. There is also lack of computer aided interaction and other specialized software to support some areas of teaching and research. It is true that internet connectivity is available in most intuitions in Nigeria, but in most cases the bad width subscribed to which determine speed of access is too small to support any meaningful academic activity" Achimugu et al (2010) inadequate ICT technical personnel are major problem in Nigerian tertiary institutions. The reason for this can be ascribed to the lucrative job opportunities available to ICT professionals outside the academics. The situation has made institutions rely on commercial private ventures to provide support for the few ICT facilities available. The support offered is in most cases are commercial and lack academic content.

There is also the concern of faculty members not willing to take the 'soft' approach to teaching and learning rather, they stick to the traditional "hard" approach. Report from OECD (2005) gave reasons why faculties resist e –learning for example, that e-learning development, with its standardization aspects, might conflict to some extent with the professional culture of

academic based on autonomy and reward system often based on research, concern about intellectual property rights and shared rights between faculty, institutions and technologies.

Also there is a very big major challenge which is funding and this issue confronts the acquisition and utilization of ICT in Nigeria universities education. Most institutions solely rely on their proprietor for funding and the bulk of such fund goes to servicing the overhead cost. Since no clear sustainable business model has yet emerged for commercial provision of e-learning, and failures have been more numerous than success, (OECD,2005), institutions are not willing to invest the little fund available to them on e-learning project.

X.   CONCLUSION/RECOMMENDATION

Major university, the use of information and communication technology is changing the method and direction of teaching, learning and research. Nigeria educational system can not afford to take the back seat in the journey. Nigerian universities have been affected by ICT and this has brought changes in the academic, official, explicitly and implicit, and the null curricula of this universities and they must not relent rather they should fully utilize ICT resources to make education in Nigeria widely available and accessible at reduced cost and also aspire to be among the best world wide.

　　　　Also issues find challenges of ICTs in education should be given urgent adequate attention.

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