

Imperative of Information and Communication Technology in Tertiary Education

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ABSTRACT--- *This study examined the importance of information and communication technology (ICT) in tertiary institutions. The meaning of information and communication technology was x-rayed. The concept of ICT and tertiary education was discussed with a breakdown of some of the imperatives of ICT in tertiary education. The study however revealed that ICT facilities were lacking in most of the tertiary institutions. The study also revealed the perceived benefits of ICT in tertiary education which include impacting learning more positively and permanently; enhancing teacher-student ability to communicate with one another unlike the conventional system of talking and chalking in a class room environment. Despite these benefits, the study also revealed some of the hindrances of ICT integration into tertiary education as; poor national telecommunication infrastructure, lack of enabling environment, including unsatisfactory performance of internet service providers; non reliability of electricity supply, inadequate and irregular funding of ICT institutions. The study went further to state modes of incorporating ICT into tertiary education. It was therefore concluded that the integration of ICT into our education system will engender the development of our tertiary institutions and that infrastructural requirements be provided. ICT should be viewed as a tool rather than as a process for managing and transforming the education system.*

Keywords--- Information, communication technology, tertiary education, electronic mail and computers.

1. INTRODUCTION

Information and communication technology (ICT) is a force that has changed many aspects of the way we live. The prevalence and rapid development of ICTs has transformed human society from the information technology age to the knowledge age (Galbreath, 2000). If one was to compare such fields as medicine, tourism, travel business, law, banking, engineering and architecture, the impact of ICT across the past two or three decades has been enormous. The way these fields operate today is vastly different from the ways they operated in the past. But when one looks at education, there seems to have been an uncanny lack of influence and far less change than other fields have experienced. A good way to think about ICT is to consider all the uses of digital technology that already exist to help individuals, Education sector, businesses and organizations' use information ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. For example, personal computers, digital television, email, robots. So ICT is concerned with the storage, retrieval, manipulation, transmission or receipt of digital data. Importantly, it is also concerned with the way these different uses can work with each other.

Decades back, Education was based only on theory and illustration based on the use of old technology like the manual typewriters and outdated equipment. However in the 21st century, Education of any kind not based on information and communication technology will be classified as outdated and not in tone with the present realities. This is because the world has become a global village and education has become global as nations agree to uphold high standards of technology and development in every industry. The use of information and communication technology cannot be overemphasized upon in our educational system. Teachers must become adequately equipped with the intellectual and professional ICT skills required for their assignment and to make them adaptable to any organizing situation not only in their country but in the world at large. Teacher therefore need to adapt to the changing environment in the education system by equipping themselves with the knowledge of ICT such as the use of computer, electronic

mails, access to electronic library e. t .c. so as to bring about desired effectiveness and efficiency required in doing their jobs which in turn leads to greater achievement of educational goals of the nation.

In Nigeria today, the use of ICT especially the use of computer has gradually become a rule than an exception, the use of computer has come to stay and to improve the quality of life through the advancement of education. In the next few years one will not be recognised as a literate or important without adequate information and communication technology skills

2. THE CONCEPT OF ICT AND TERTIARY EDUCATION

There is no universally accepted definition of ICT, why? Because the concepts, methods and applications involved in ICT are constantly evolving on an almost daily basis. It's difficult to keep up with the changes - they happen so fast. Information and communications technology or information and communication technology, usually called ICT, is often used as a synonym for information technology (IT) but is usually a more general term that stresses the role of telecommunications (telephone lines and wireless signals) in modern information technology. ICT consists of all technical means used to handle information and aid communication, including computer and network hardware as well as necessary software. In other words, ICT consists of IT as well as telephony, broadcast media, and all types of audio and video processing and transmission. 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.

ICT is often used in the context of "ICT roadmap" to indicate the path that an organization will take with their ICT needs.

The term ICT is now also used to refer to the merging (convergence) of telephone networks with computer networks through a single cabling or link system. There are large economic incentives (huge cost savings due to elimination of the telephone network) to merge the telephone network with the computer network system. See VOIP. This in turn has spurred the growth of organizations with the term ICT in their names to indicate their specialization in the process of merging the two network systems. Abifarin (2003) sees Information and Communication Technology as a modern communication system for transferring information. It is a mechanism that provides easy world wide communication with access to vast array of data and assessment skills which improves the living condition of man. The global trend is wheeling round, focusing and emphasizing the use of information and communication technology (ICT) in all works of life. The term ICT also includes electronic, information processing, technology such as computer and the internet as well as fixed-line telecommunication, mobile phones and other wireless communication network, broadband etc. ICT can be applied almost in all works of life. Information and communication Technology (ICT) can also be referred to as the handling and processing of information and instructions, graphs, text, and images for use by means of electronics and communication devices such as computers and telephone. Ademuiegu (2006) sees ICT as the equipment (Hardware) and computer program (software) that allows us to access, retrieve, store, organize, manipulate, share and present information electronically.

There has been however set backs on the use of ICT in tertiary education, which were caused by lack of adequate funding for ICT, lack of adequate knowledge of the benefits of ICT in the teaching and learning process, and lack of support and training. Tertiary education often referred to as higher education is the education that takes place in a polytechnic, university or college of education it is an advance and the highest level of education. Tertiary institutions are vital agent of development in any country. In our higher institutions today there is no discipline that does not require the use of ICT especially for lecturers who are custodians of knowledge. A lecturer's competence is of particular concern when new subjects or media are introduced into the system, because most lecturers are not knowledgeable in using computers for any form of teaching. Unfortunately some who are interested have very low level of knowledge in ICT. The importance of educators in the successful implementation of information technology into the educational system cannot be overemphasized. Thus the introduction of ICT into the curriculum for training teachers will be a welcome initiative. While the global trend is pushing some tertiary institutions to incorporating ICT into their school system others are relenting in their duty. The federal government should therefore make a policy for the uniform development of ICT in all our tertiary institutions.

3. THE IMPERATIVE OF ICT IN TERTIARY EDUCATION

Education in this century has gone beyond a teacher holding marker and standing in front of a large class, what we see these days is e-learning, virtual library, on-line examinations etc. education has been made easy and at the same time difficult. This is because for those who can move with the trend, accept and be able to afford it, it become easy while for those who are resilience to change and or cannot afford it, it becomes a problem. The imperative of ICT in tertiary education cannot be exhaustively outlined; however I will break them down for the purpose of this paper.

- ICT as a powerful instrument makes learning a truly life long activity because it impacts learning more positively and permanently.
- It enhances teacher-student ability to communicate with one another unlike the conventional system of talking and chalking in the classroom environment.
- One vital benefit is that both the learner and the educators will get up to date information.
- It can be used to help in school administration.
- It can be used to train students in skills which they will need in further education and as an ongoing learning process throughout the rest of their lives and for their future jobs, e.g., word processing, E-mail communications etc.
- It can provide access to information and communication outside the classroom e.g., via the Internet.
- It combines and integrates a full range of media essential for effective learning. The ICT uses sounds, vision, text and numeric data.
- It provides lecturers with new opportunities and in particular, distance learning and involvement in the real-world.
- There is an opportunity to increase the interest and involvement of students by the one to one relationship provided by the student and computer.
- ICT can facilitate research in any discipline as they provide quicker and easier access to more extensive and current information through digital libraries that provide digitised full-text resources to learners and researchers. Others are the electronics list- a directory of scholarly and professional e-conferences containing relevant topics and articles relevant to researchers and electronic reference desks or virtual libraries. Others include electronic journal and catalogues and image database. Others are Internet resources; gopher and CD-ROM can provide a researcher with current, in depth, firsthand information
- ICTs can be used to do complex mathematical and statistical calculations which are important in research. They can be used for data manipulation and analysis. The ICT will facilitate the compilation of data on time, performance of statistical analysis. In fact, complex statistical analyses are not only performed instantaneously but also more accurately than possible manually.

4. HINDRANCES OF ICT INTEGRATION INTO TERTIARY EDUCATION

When teaching and learning process is assessed critically in tertiary institutions in Nigeria, it could be observed that the challenge for lecturers in tertiary institutions is no longer in covering the course contents or in adopting appropriate teaching pedagogy, but it is in having access to ICT and using it to embrace teaching and learning.

Association of African Universities (2000) identified some obstacles in the introduction and utilization of ICTs in African universities. These include the following among others:

- Absence of National Information and Communication Infrastructure policy (NICI policy).
- Poor national telecommunication infrastructure (especially inadequate telephone access).
- Lack of enabling environment, including highly regulated telecommunications industry, unsatisfactory performance of internet service providers and absence of incentives to promote innovation and risk taking.
- Internet points of presence in several countries are not easily accessible to university communities, even with high-speed telephone systems.
- In the Niger Delta for instance, the hostile social climate and potential instability prevent opportunities of international collaboration and support.
- Non reliability of electricity supply.
- High Internet Service Providers (ISP) fees.
- Inadequate and irregular funding of ICT initiatives.
- Prohibitive importation costs of ICT equipment, often compounded by national import tariff levels.

Dogara, Ahmadu and Lawal, (2003) and Gambari and Okoli (2007) identified other problems as bureaucracy, lack of well-equipped ICT labs, lack of qualified personnel to maintain the ICT materials and no connectivity to internet, lack of adequate training program, Head of department/Deans' militating against the use of ICT in teaching and learning.

5. MODES OF INCORPORATING ICT INTO OUR TERTIARY INSTITUTIONS

1. There should be constant electrical supply.
2. The basic infrastructural requirements should be provided.

3. There should be commitment by all levels of government.
4. ICT education especially computer education should be made compulsory for all levels of education.
5. Capital should be provided to tertiary institutions so that they can fully integrate ICT into their educational system.
6. The management of higher institutions should make fund available to lecturers in form of ICT loan and make it mandatory for every one of them to acquire personal laptops so that they can imbibe the knowledge faster as they practice at home.
7. Internet facilities should be provided in all tertiary institutions across the nation.

6. CONCLUSION

Information and communication technology (ICT) offer innumerable benefits in enriching the quality and quantity of learning in tertiary institutions. Despite the prevalent nature of ICT in virtually every aspect of human endeavours, they have not been widely integrated into the teaching and learning process in higher institutions. Their integration will not only revolutionise tertiary institutions, they will engender the development of our tertiary institutions, lecturers, and students' instinctive scientific inquiry mind and their critical thinking abilities. The infrastructural requirements for the application of ICT in our educational system are presently not available. There is constant power shortage which mostly discourages people from acquiring the equipments. ICT should be viewed as a tool rather than as a process, for managing and transforming the educational system.

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