

## EXPLORING THE POTENTIALS OF COMPUTER IN ADVANCING HIGHER EDUCATION IN NIGERIA

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### ABSTRACT

Electronic technology has brought about the emergence of computer which has the potential of fostering education in human society. Advancement in higher education is a means of ensuring sustainable development in Nigeria. The focus of the paper is that computer can serve as an electronic device that can be used to advance higher education in Nigeria. Issues discussed in the paper were higher education in Nigeria, computer and its technological value, and relevance of computer in uplifting higher education in Nigeria. The paper explained that computer has the potential to enhance higher education because it can be utilized to: improved productivity, promote quality education, store information and records, secure life and properties. Certain recommendations were made to encourage the use of computer for advancement of higher education needed for development in Nigeria.

**Keywords:** Computer, higher education, development, Nigeria.

### INTRODUCTION

An effective and efficient activity in the education sector of the economy is a means of promoting sustainable development in Nigeria society. Usually, quality education is a resource for development in human society. Nwosu (2006) asserted that quality education is a resource for achieving great and dynamic economy. Okafor in Nwosu (2006) noted that it is from education as from a central hub that rays that invigorate other contemporary human activities take their rise. A prominent form of education is higher education, and it is that obtained from tertiary institutions such as university, polytechnic, college of education, etc.

In this modern era, ensuring quality education in Nigeria tertiary institution demands the use of electronic technology. A prominent product of electronic technology is computer. Computer is an electronic device that has great potential in processing and storage of data and

information, resulting that it has wide applications in various human activities. Based on its relevance in human endeavour, computer can serve as a great resource that can advance higher education in this modern era for development in Nigeria.

### **Higher Education in Nigeria**

Higher education is that form of education obtained from higher institution, also known as tertiary institution. Tertiary institution provides education for imparting of knowledge and development of human capital. Onyido and Onyeike (2011) viewed education as the building block of social and economic reconstruction for it is the most effective weapon for breaking the vicious circle of underdevelopment, ignorance, poverty, disease, economic dependency and political instability. Ogar in Nwosu, Ezeilo and Chijioke (2013) acknowledged that education is a process of successful learning and it is aimed at liberating people from ignorance, poverty and frustration.

Effort for establishment of higher education in Nigeria started during the colonial days. Idike in Nwosu, Ezeilo and Chijioke (2013) pointed out that Yaba Higher College was established in 1932 as the first institution for polytechnic education in Nigeria based on the need for technological progress in the nation. Establishment of University College Ibadan, which was then an affiliate of the University of London, in 1948, marked the beginning of university education in Nigeria (Omotayo, 2011). Nwosu, Ezeilo and Chijioke (2013) explained that there are three major tier tertiary system of education in Nigeria: Colleges of Education, Polytechnics, and Universities. The nation has a non-conventional university called National Open University of Nigeria (NOUN) which greatly makes use of Information Technology. In addition, to the three major tier tertiary institution and NOUN, the nation also has private tertiary institutions to help accommodate the upsurge in prospective student populations.

The purpose of higher education in Nigeria focused on development of human resource and it is expected to bring about sustainable development in the nation. Omotayo (2011) stated that establishment of higher institutions in Nigeria is brought about by the need to have adequate well trained and efficient higher level manpower in Nigerian economy; the higher level manpower are supposed to be absorbed into

the economy of the nation for higher productivity, peace, love and sustainable development of the country.

Higher education in Nigeria is faced with various problems, which includes graduate unemployment in the labour market. Ibora and Arikpo in Nwosu, Ezeilo and Chijioke (2013) explained that among the multidimensional reasons for the high unemployment rate in Nigeria is that theoretical education has been emphasized over practical education and skill development, resulting that most Nigerian graduates lack the requisite skills for self employment. It is the opinion of Nwosu and Chijioke (2005) that students should be knowledge-conscious rather than being certificate-conscious. Omotayo (2011) mentioned that problems facing education in Nigerian tertiary institutions include:

- Under-funding of higher education institutions that hinders effective research and educational development.
- Shortage of qualified staff that indicates inadequate staffing, resulting in breeding of mediocrity and falling of standards.
- Poor condition of service that has resulted to constant industrial actions and disputes which staff of higher educational institutions has with government and management.
- Brain-drain whereby the tertiary institutions lose the best of them to other places, resulting that collective ability to achieve and excel remains limited as intellectual growth is stunted.

Higher institution in Nigeria is faced with the challenge of ensuring that higher education is aimed at achieving great and dynamic economy in the nation. Omolewa in Nwosu, Ezeilo and Chijioke (2013) acknowledged that there is challenge of ensuring that education in Nigeria must be consistently geared towards the pursuit of excellence and high quality. There should be effective development of education to liberate the poor, empower the weak and give hope to the hopeless, encouraging all of these to acquire self-confidence and pride in themselves and their capabilities to produce a well-cultured and disciplined individuals who would learn to live in harmony with one another, and share a common vision of greatness and revival. Omotayo (2011) observed that challenges facing higher education institutions in Nigeria are numerous with negative and devastating effect on sustainable development to the country. Problems and challenges in higher education can be handled with aid of electronic technology, such as computer.

### **Computer and Its Technological Value**

Technology is aimed at helping man enjoy his life by making his environment pleasant and conducive. The base for technology is science. Negedu and Unwaha (2011) pointed out that technology is application of scientific knowledge or inventions in finding solutions to physical and social problems of man in order to satisfy needs or achieve set goals or objectives; science provides the knowledge, while technology transforms scientific knowledge and skills into products necessary for the development of the society. Onuoha in Ezema and Ali (2011) opined that technology is the practice of any of the applied sciences that have practical values and/or industrial use.

A technology greatly employed in human environment, and which has influenced ways of doing things, is electronic technology. Simply stated, electronic technology is a technology that is pivoted on electronics. Electronics involves the study, design, construction and application of devices whose operations are based on the conduction of electricity in vacuum (vacua), or gases or semiconductors (Chiwetalu 2004). Pitt in Ezeilo, Ananti, Ogwata and Abang (2014) stated that in this modern era, electronics mainly involves the use of semiconductors devices while vacuum and gas filled devices are rarely used.

A familiar and an essential product of electronic technology utilized in this contemporary era is computer. Computer has been acknowledged as a vital product of electronic technology widely used in human society (Nkamuo, Ezeilo, Nwosu, & Onwughalu, 2011). The construction and operation of computer involve the application of electricity in semiconductor devices. Computer is an electronic device consisting of two main components: hardware and software. The hardware component is the physical electrical circuitry while the software component is the set of logical instructions called program that set the computer (hardware component) into operation. Computer operates such that it reduces stress and difficulty in works and human activities by accepting input data, and uses the program installed in it to process the data with high speed and accuracy to generate result as the output. Ohayaghain Amechi and Nwosu (2017) noted that computer is a device with high-speed electronic brain that accepts, analyzes, synthesizes and generates information by an operator.

The usage of computer is versatile for it is applied in almost every aspect of human activities because of its interesting nature. Nwosu (2013) acknowledged that computer system, as a vital electronic device with technological value, has certain characteristics: provision of accurate results, possession of high operational speed (saving of time in operations), high memory capacity for storage of data and information, flexibility in modification of data and information, maintenance of reliability in its operation, ability to handle complex tasks, performance of neat job, wide utilization in human endeavor (i.e. versatility in application). With the aid of the software or program, the computer can perform various and numerous desired tasks. Johnwakoloin Nwosu (2013) pointed out that computer is a device that uses an intellectual map called programme to make decision, process word, publish, create graphics, choose, copy, move, compare, and perform other non-arithmetic on the many alphabetic, numeric and other symbols in the desired way. Sadiq, Nnebe and Momodu in Nwosu (2013) noted that computer is useful in human endeavor for it is a machine used for fast generation, calculation as well as storage of information; and its invention serves as a useful assistance to manual labour since it quickens data processing activities or functions. Computer can be seen as an electronic device with great technological value to the extent that a lot of activities in human society are carried out with it. It should be noted that information technology (IT) that enables the world become a “global village”, through the use of the Internet, exists due to the emergence and use of computer. Based on its relevance, computer can serve as veritable resource for advancement of higher education in Nigeria.

### **Relevance of Computer in Uplifting Higher Education in Nigeria**

Computer is a vital product of electronic technology that can enhance works for uplifting higher education due to its potential to promote productivity in human activities. Nwachukwu in Amechi and Nwosu (2017) averred that productivity is the output resulting from a given resource input at a given time. Productivity is high when there is economy of time and energy by performing a task in a short time with less energy. Fortunately, computer is a technological device that saves time and energy and also produces accurate result (Nwosu and Chijioke, 2006). Ekemezie in Amechi and Nwosu (2017) averred that the purpose of computer system is to speed up problem solving and increase productivity. Anigbogu in Nwosu, Ezeilo and Chijioke (2013) asserted that computer is a kind of electronic device or machine which mankind can use to solve

different types of problems much more easily and it can accept data and instruction and process the data based on the instructions to generate result or output in such a manner that is to be equaled by any other machine known to mankind.

Computer can serve as a resource for fostering quality education for it can offer the human resources (students, staff and management) the opportunity to enhance their intellect in their discipline and career. It is possible to have educational packages (software) pertaining to various disciplines and careers in higher education installed in the computer. The human resources can use the education packages to obtain knowledge and skills with ease and at a convenient pace for better understanding of principles and practices concerned with the discipline and career. Amechi and Nwosu(2017) pointed out that computer, as an educational device, can be used for electronic learning through the use of education software like Computer Assisted Learning (CAL) or Computer Aided Instruction (CAI), which can enable students revise any course material (subject matter) as often as possible for total mastery. Chijioke(2009) noted that CAI guides a student and enables him learn course material at his own pace for better understanding. A useful computer package (software) for scientific design is computer aided design (CAD); and with CAD one can learn through computer simulation, which enables creation of model of a real life system and experimenting or investigating on the model behaviour to determine the performance of the real-life system when built (Amechi&Nwosu, 2017).Computer can be used as an audio-visual instructional material to impart knowledge and skills to the students in higher institution. For example, computer can be used with a projector for a quality lecture delivery. Topics in higher education can be stored in the internal memory of a computer or in a disk and then be displayed to the students for better understanding. Computer can be employed to enhance quality of examination in higher education. Computer can be used as an electronic device for taking examination in form of computer based test (CBT) containing objective questions. CBT can reduce examination malpractice among students. In an effort to meet up with the examination time set for the CBT, students most times focus on their individual tests without interacting with their examination neighbour(s) (Amechi&Nwosu, 2017).With CBT, computer can mark examination questions and score the students properly. Such marking by the computer can reduce or eliminate immoral act of student bribing their lecturers for undue mark and grading.

The human resources in tertiary institution, as man, cannot be able to remember all information and transactions needed to carry effective and efficient activities required of them. With the use of computer, there can be storage of educational information and records that can be retrieved and used at later time for effective and efficient operations in higher education. Sadiq, Nnebe and Momodu in Nkamuo, Ezeilo, Nwosu and Onwughalu (2011) pointed out that computer has played a vital role in information storage and generation and also computer can be used as mediators in facilitating communication, interaction, comprehension, stimulation, simulation, evaluation, assessment, synthesis, recreation etc.

Computer can also offer security value to higher education for it can be utilized for protection of life and properties in tertiary institution. It is possible to build an electronic security system that makes use of computer. The security system can be employed to discourage, prevent or indicate the unauthorized presence and action of an intruder or a criminal tampering with life or property in higher institution. Nwosu (2013) acknowledged that various electronic systems, which include computerized ones, can be built to indicate the presence of an illegal person (an intruder) or a criminal. Existence of computer has brought about the emergence of the Internet, which is the largest computer network in which computers are networked together globally. Internet enables communication from any part of the world, irrespective of the geographical distance, thereby making globalization possible. The use of the Internet is a means for enhancement of higher education for it has facilities for sending and receiving educative information from any part of the globe, thereby dismantling distance and boundaries in communication. Internet makes electronic learning (e-learning) possible. E-learning fosters distance education for it enables acquisition of knowledge and skills, without face to face contact with a tutor. Students and researchers in higher institution can browse in the Internet, and obtain educative information and knowledge that can boost higher education in Nigeria. Nwosu and Chijioke (2005) asserted that Internet provides information that goes a long way in enhancing the socio-economic development of its users because it enables one to be knowledgeable and enlightened and also develops one's potential and capabilities. Internet can serve as a medium for security needed for safeguarding life and records concerned with higher education. Nwosu (2013) perceived that the emergence of Internet has helped in minimizing transportation hazards like traffic congestion and road

accidents because people can communicate and interact with one another without travelling; and with a secured website, documentation can be made in the Internet such that vital records and information lost or destroyed in an organization can be retrieved for continuous operations in the organization.

## **RECOMMENDATIONS**

Based on the potentials of computer system in advancing higher education, it is recommended that:

1. The human resources in tertiary institution should be computer literate.
2. The management of tertiary institutions should ensure that activities in the institutions are computerized.
3. Government, organizations and well-to-do individuals should support the acquisition of facilities and infrastructure that encourages adequate exposure and utilization of computer for enhanced higher education.
4. All people involved in use of computer in higher education should avoid computer crime that can jeopardize higher education.

## **CONCLUSION**

Nigeria, as a developing nation, should seriously aim at uplifting higher education for sustainable development that will push her becoming a developed nation. In this modern era characterized with electronic technology, computer is an essential device that can enhance higher education in Nigeria. Adequate use of computer in tertiary institution will boost higher education for it has the potential of bringing about high productivity, quality intellectual development, pleasant communication, and electronic-based security.

It is expedient that the human resource in tertiary institutions in Nigeria should develop a strong value system in the use of computer for promotion of higher education. It will be appreciable if government, organizations and individuals provide the necessary supports that will be of great benefit in the use of computer for advancement of tertiary education. To make the use of computer relevant in higher education, ethics must be demonstrated in its use to avoid computer crime that retard development.



## REFERENCES

- Amechi, M.C. & Nwosu, F.C. (2017). Technological value of computer in handling contemporary issues in engineering. *Journal of Resourcefulness and Distinction*, 14 (1), 290 - 298.
- Chijioke, A.I. (2009). Relevance of computer literacy in socio-economic development of the family. *The Nigerian Academic Forum*, 17 (1), 74 - 78.
- Chiwetalu, B.N. (2004). *Electronics (concept, materials & devices)*. Enugu: Zik-Chuks Press.
- Ezeilo, C.J., Ananti, J.E., Ogwata, C.M. & Abang, P.A. (2014). Application of electronics in fostering science and technology for self-reliance and sustainable development in Nigeria. *International Journal in Advanced Research in Social Engineering and Development Strategies*, 2 (1), 160 - 166.
- Ezema, J.U. & Ali, A.A. (2011). Factors influencing the extent of library resources by science education undergraduates of university of Nigeria, Nsukka. *African Journal of Science, Technology and Mathematics Education*, 1 (1), 50 - 60.
- Negedu, S.A. & Unwaha, C.E. (2011). Entrepreneurial and functional science and technology as means of achieving the national objectives of vision 2020 in Nigeria. *Multidisciplinary Journal of Research Development*, 17 (4), 166 - 170.
- Nkamuo, C.J., Ezeilo, C.J., Nwosu, F.C. & Onwughalu, M.K. (2011). Advancing in electronic technology for sustainable development in Nigeria. *Journal of Social and Policy Issues*, 8 (3), 32 - 39.
- Nwosu, F.C. (2006). Utilization of electronics for promotion of quality education. *Journal of Qualitative Education*, 2 (3), 119 - 124.
- Nwosu, F.C. (2013). Matching towards electronics and information technology for an improved economy in Nigeria. *International Journal of Research and Advancement in Engineering Science*, 3 (3), 52 - 58.

- Nwosu, F.C. &Chijioke, A.I. (2005). Application of computer study in education for economic advancement. *Multidisciplinary Journal of Research Development*, 5(3), 54 - 58.
- Nwosu, F.C. &Chijioke, A.I. (2006). Enhancing the productivity of government workers using computer system. *Multidisciplinary journal of research development*, 2 (3), 137 - 141.
- Nwosu, F.C., Ezeilo, C.J. &Chijioke, A.I. (2013). Effective utilization of the internet for advancement of education in Nigerian tertiary institutions. *African Journal of Engineering Research and Development*, 6 (2), 32- 38.
- Omotayo, T.O. (2011).The challenges of higher education in Nigeria today: implication for sustainable development. *Academic Scholarship Journal*, 3 (1) 18 - 29.
- Onyido, G.C. &Onyike,V. (2011). Politics of educational development in Nigeria: an overview. *Academic Scholarship Journal*, 3(1), 11 - 17.

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