

INFORMATION COMMUNICATION TECHNOLOGY AS AN AUTHENTIC TOOL FOR IMPROVED EDUCATIONAL SYSTEM IN NIGERIAN HIGHER INSTITUTIONS

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Abstract Information and communication technology is an integral part of modern life and contemporary education. This study is designed to outline the need for ICT to facilitate cutting-edge opportunities in education in Nigerian higher institutions. At present, Nigeria is on the wrong side of the international digital divide, as it has not made significant effort to integrate ICT into as much as is required to bring about the educational reforms the country needs. A great deal of educational and administrative work in higher institutions in Nigeria are still being carried out physically. This study, therefore, examines the benefit of ICT in education, major hindrances militating against the use of ICT in higher institutions in Nigeria, prospects of ICT in Nigerian higher education systems. ICT Training to further qualify teachers in higher institutions was recommended amongst others. Keywords: ICT, Learning, administration, Education Introduction Currently the world, is witnessing the emergence of varied developments in science and technology, which has led to major innovations in the field of education creating new and improved teaching and learning opportunities. In traditional education systems, teachers are guardians of knowledge while students are generally passive. However, the existence of ICT now opens new opportunities for active learning in which the student takes responsibility for his own learning. However, the teacher still remains the creative holder of active knowledge, and the use of ICT gives him new opportunities to encourage creative expressions in the learner. It can be observed that advancements in Information communication technology are largely changing the traditional way that tertiary institutions teach and also the way that the students learn. For academic institutions charged with equipping learners to compete in today's knowledge economy, the possibilities are enormous such as distance education, sophisticated learning-management systems and the opportunity to collaborate with research partners from around the world are just some of the transformational benefits that tertiary institutions are embracing. The basis of this is ICT which consequently demonstrates the role it plays in the educational system. The education sector, through its systems and policies is responsible for training and developing human capital resource of any nation. Every sector of a nation's economy cannot be effectively and maximally exploited, if the human capital resource which is its greatest asset lacks quality education. Education is the vehicle that gives a nation direction and focus in its path to greatness thus, every nation's development hinges on it (Barineme, 2014). All over the world, developed nations have used education to build up their human capital resources. Therefore it is not surprising that all the industrialized nations as well as the fast emerging ones are currently giving a great deal of thought with added resource commitments to develop the sector in such a way that is both globally competitive and sustainable. Broadly speaking, education ultimately culminates in the transference of knowledge from one generation to the other. This brings about a change in behavior as skills and values are acquired, modified or reinforced. In this vein, education can be said to perform two major functions which include; the transmission of culture, values and skills of the past to the current generation, and preparing the young for the world in which they will live. Researchers on innovations in education observe clearly that the innovators in ICT have created some of the most provocative and stimulating ideas in the history of education as the computer and its aided infrastructure has become a universal feature in most spheres of life today. For example, many economies including Nigeria have embraced the use of ICT. The result of this decision is obvious and without doubt the role ICT plays as an enabler of these changes is stronger today more than ever. Today, ICT in schools is one of the fastest growing developments in education. The worldwide adoption of ICT

that is computer and its aided infrastructure has further laid credence to the indispensable nature of ICT as an authentic tool for an improved educational system. In using ICT, the speed at which data are stored, processed, transferred shared and disseminated cannot be achieved otherwise and as such educators can easily track grades and communicate them to students along with certificate issuance. In Education, Information Communication technology can either be used for the actual education (teaching and learning) process or for administration purpose (Chijioke, 2013). Hadded and Draxler (2010) identified the five levels where ICT can be used as aid in the actual teaching and learning process as presentation, demonstration, drill and practice, interaction and collaboration. In school administration ICT is used in areas such as in the admission process, course registrations, storage of official and students' records, fiscal accountability, clerical duties and so on. Furthermore, they can also be used in educational planning and decision-making and control, and simulations. Computers and its aided infrastructure are helpful in administering aptitude tests at the time of entrance, etc. even the concept of digital library is a new concept in the field of school administration. These possibilities have given ICT an influential place in educational development providing a platform for the teacher and learner to enjoy a robust learning process and its resources can provide opportunities for learning as well as create the enabling environment for optimal learning. With the computer and its aided infrastructure in place, the teacher now becomes a facilitator of learning and not a Centre of knowledge as he is able to incorporate a host of strategies to guide his students. On the other hand, it opens the learner up to a whole world of knowledge where he can access libraries, experts and an immeasurable collection of resources (Barineme, 2014). ICT plays an essential role in facilitating quality education as it can be used to develop information processing skills and dispositions. It provides access to databases, simulations, and the Internet which holds rich experiences, knowledge and skills for students and teachers to acquire represented by the current standards. It also offers empowerment considering the fact that the teaching and learning processes will be transformed from the traditional teaching style (highly teacher-dominated) to being student-centered. This present disposition encourages learners to develop their creativity and problem-solving abilities, informational reasoning, communication and higher-order thinking skills. Presently, in the Nigerian higher institutions, there are a number of statements that have been made by renowned educational experts in various disciplines and systems, which have called for revolutionary changes in the way teaching and learning currently takes place. These agitations for wide-ranging educational reform will, better position the nation, to clench the opportunities that are arising as societies move towards an increasingly digitalized, networked and knowledge-based society. These reforms will no doubt be better implemented through the adoption of information and communication technology taking into account the trends currently in existence such as elearning, web based learning, virtual library, globalization, migration, demographics, technological progress that are transforming the way people work, learn, transact business, and make sense of their world (Adomi and Anie, 2006). Also observed in the Nigerian higher institutions, is the prevailing condition in school administration and management which is largely disheartening and discouraging. Institutions in the country seem to be categorically backward in educational administration and management when compared to developing countries in Africa such as South Africa, Kenya, Uganda and Tanzania. Institutions in these countries are far ahead of Nigeria in ICT deployment and Nigeria, despite its huge material resources and population, is sparsely counted among progressive nations using ICT in holistic educational administration and management, well aware of the fact that technology has become a critical tool for achieving success in education. This work aims to discuss the far reaching benefits of Information communication technology in education and its potential to significantly improve educational standards in the Nigerian higher

institutions in practically all aspects including for administrative and management purposes, as well as the other benefits to students and teachers. Certain recommendations are made to support the implementation of National policy on Information communication technology (ICT) by the federal government of Nigeria and National council on Education (2004) Benefits of ICT in Education Today, computer technology in schools is one of the most far-reaching and fast growing developments in education (Bada, Adewole & Olalekan, 2009). These developments in science and technology has brought into lime light the indispensable roles of computer in the area of information technology. This has eventually made the computer system very popular as it continues to exert greater acceptance and the need for computer technology and literacy in the educational system to become more relevant. Computers have been found to be effective devices for presenting instructional programmes which can be also used to diversify, develop and improve the pedagogical relation of teaching and learning (Bada, Adewole & Olalekan, 2009). From expanding their world views to engaging in projects with their peers, students with access to computer stay well connected with the following benefits (Carpenter, 2011).

- Access to More Information - students who use a computer in the classroom have access to more information to propel their learning. They can research a topic the teacher talks about in the classroom, using the Internet. Many textbooks come with computer CDs to supplement classroom learning. Educational software programs, as well as online-based games, promote learning as well. All of these resources become quickly accessible with a computer in the classroom.
- Increased Likelihood to Write - working on a computer can encourage learners to write more, which can improve their writing skills. Learners are more willing to write using the computer than with paper and pencil. The ease of typing makes writing less of a physical challenge, and learners can focus more on content than the physical process of writing.
- Improved Technology Skills- students who access computers in the classroom will build their computer skills, which are invaluable in a technologically sophisticated society. Building these skills at a younger age by way of classroom computers can pay dividends as the student advances through school levels. Students also learn to work with the computer programs.
- Collaborative/Group – learning in today's classrooms often feature group work, which promotes teamwork, collaboration and compromise. Classroom computers help facilitate this group work. Group of students can contribute to a single computer-based document, which is easier than combining multiple written documents. Groups can also conduct research together. Thus, facilitating collaboration and group work.
- Learning Enhancement -students might explore the Internet to find illustrations related to subjects they are studying. Science students might browse scientific magazines or websites. Students also use computers to perform research for their assignments. The 3D models and interactive games in classrooms have always enhanced the learning process, as interactivity brings students a more thorough understanding of course material. These "extras" are limited and not always possible for many subjects; however, with the power of a computer, online extras are easily accessible. Computers allow students and teachers to access additional pictures, videos, Programs and many other educational tools. The individualized interactivity is another creative addition by ICT and it does not only present information with the audio-visual expressive possibilities of television or film, but also can receive information from the user, and can adapt the presentation to the user needs preferences or requests. Furthermore, in environments where the internet is accessible, ICT provides seamless gateways to information in aspects such as: Computer Assisted Learning Here, the student learns by interacting with a programme stored in the computer. This program is designed to react to the student needs according to predetermined pedagogical criteria. The benefit is that each student may learn according to their cognitive level and learning speed, independent of their classmates. The student receives individual guidance, with

explanations tailored to perceived problems, and opportunities for in-depth learning according to individual interests. Presentation Skills Teachers and students can use computer-based tools, such as text or graphic editors, databases, spread sheets, or presentation packages, to help in processing information. These can assist the teachers to improve and enrich their presentations with beautiful graphics and tables, which can be stored, easily updated, and readily accessible for presentation. Students may on the other hand submit their assignments for correction and grading on CD's or through the e-mail. And either way, the benefits are enormous. There will be better presentation of materials as well improved quality of assignments by the students. Teachers and students therefore get used to working in the style and with the tools that permeate industrial, commercial and intellectual life. Communication networks Students and teachers can communicate with their peers and access data banks in different parts of the world, in order to develop joint projects, exchange information, or request advice (Osin, 1998). In this scenario, the teacher may ask a student, or a team of students, to research the topic by exploring the internet for relevant information. Although not all the information on the internet is reliable, the system assists the student to develop the ability to be analytical and critical in order to filter and obtain the relevant information. These skills are not usually developed in the restricted environment of the typical classroom, where most information has been filtered for them. Teams of students in one country can develop joint projects with teams of students in other countries by exchanging and comparing data on similar or contrasting phenomena through social media. The benefit of this is that instead of isolated classes, students can communicate with people and gather information from other parts of the world, thereby increasing their motivation to use higher level analytical skills in their school work (Osin, 1998). Nigerian National Policy on Information and Communication Technology (ICT) in Education In order to ensure that qualitative education is achieved for the attainment of sustainable development, the national policy on information and communication technology in Education was published in April, 2010. The Mission of the Policy is "to meet the human resource requirements of the nation for attaining and enhancing the sustainable socioeconomic development, global competitiveness as well as the individual's ability to survive in a contemporary environment". The objectives include to: 1. Facilitate the teaching and learning processes. 2. Promote problem-solving, critical thinking and innovative skills. 3. Promote life-long learning. 4. Promote the various teaching and learning strategies required to meet the needs of the population. 5. Foster research and development 6. Support effective and efficient education administration 7. Enhance universal access to information 8. Widen access to education and range of instructional options and opportunities for any-where, any-time, any-pace and any-path of learning. The policy clearly states the role ICT should play in education and to ensure that education in the country is developed and sustained by ICT in line with trends all over the world. Though efforts are being made at various levels in this regard, we are yet to get to where we are expected to be, Prospects of ICT in Nigerian Higher Education Systems The computer as a major component of Information Communication Technology (ICT) brings unparalleled additions to the teaching and learning process, School Administration and Management system, as well as research and research collaboration. The introduction of ICT in any educational system has the potential to change the way the business of education is conducted. According to Barineme, 2014 achievements such as but not limited to the following were realized at the Rivers State University of Science: ∞ Improved internally generated revenue ∞ Improved registration processes in new academic sessions ∞ Improved the computation, storage and retrieval of results. ∞ Improved examination processes by sixty to seventy per cent (60-70%) with the introduction of e-testing for foundational studies courses. ∞ Reduced malpractices centered on examination and result frauds to a good seventy percent (70%). ∞ Transparent

processes with due diligence. ⌘ Allocation of hostel accommodation by online process, allowing a true first-come first-served policy. ⌘ Enhancement of e-capability of staff and students to a good eighty per cent (80%). ⌘ Improved quality of education that motivates students to learn using ICT tools such as video computer games and multimedia software that combine text, sound, and colorful ⌘ Huge cost savings brought in for the university from the adoption of e-administration as most of the paper related activities were brought to the barest minimum. Such as paperless Senate meetings, Minutes and papers for the senate were produced and distributed electronically making storage and retrieval of Senate information easier and faster. This led to a remarkable reduction in the cost production and reduced and the burden of moving papers around. ⌘ Drastic reduction in undue human interferences for the implementation of the institution's policies leading to a much desired quality in service delivery. ⌘ Elimination of routine processes that used to exist thereby availing lecturers and school management staff more time to handle their core business of academics and administration. ⌘ Robust IT infrastructure also, opens to institutions of higher learning is the complete integration of e-learning in its entirety where lecture notes, videos and presentations can now be uploaded by lecturers for their students to access and use anytime anywhere in the world. This use of technology will help overcome the challenges and limitation of time and space as most of the challenges and limitations posed by infrastructural decay and very large classes can be overcome with lesson videos, notes and presentations hosted to allow students access them whenever they desire within the context of the course outline and school calendar. This will also allow for a teaching learning collaboration, among students, lecturers, and experts in a larger intellectual world community respectively. ⌘ ICT offers the Nigerian teacher improvement in the techniques of research. The problem of going through the library's card catalog or periodical indexes can be made easier by typing few key words pertinent to the research topic into a computer connected to Internet and the researcher can receive extensive list of related sources of articles in books and journals in just a matter of minutes.

Challenges of ICT in Education Despite the relevance of ICT to both the developed and developing society, it is yet to be fully implemented in the Nigerian educational institutions and the reason is attributed to some challenges facing its implementation. The challenges that have hindered full ICT implementation in the educational system are both educational and administrative. One of the administrative problems is cost. Over the years the high cost of hardware and software installation, maintenance and replacement, as well as network bandwidth have made it difficult for educational administrators to acquire and maintain the IT infrastructure required for instruction of learners at all levels of education in the country leading to the inadequate level of ICT Implementations. There is also need for the extensive appropriate training of the personnel to operate and maintain the ICT infrastructure for such large scale utilization. Another major factor that militates against the full implementation of ICT for various operations is our attitude to change. For example, there was general apathy to the change observable in any work environment with workers insisting on the old ways they are used to thereby indirectly resisting change. In higher institutions, we could have some Lecturers still preferring to calculate CGPAs' manually instead of allowing the MIS department to handle it for them. The reason is obvious, as some benefit from the manual calculations and will therefore see the MIS as a big threat to them and even with opportunities to get training some are uncomfortable with this for various reasons. A similar attitude is displayed towards, Computer based examinations, as some lecturers would prefer going home with hundreds of scripts to grade manually rather than for the examinations to be conducted at the IT Centre. But when this is encouraged, students have access to their grades almost immediately at the end of the examinations and the burden of grading of so many scripts is taken off the lecturers as well as the

minimization of exploitation tendencies. Power supply also, is a challenge because in a developing country like Nigeria where power supply for twenty-four hours a day is considered luxury knowing well that a functional ICT infrastructure requires constant or regular power supply for its effective running.

Conclusion Information and communication technology has come to stay impact fully so because it has in many ways changed the way the education business, communication and the way day to day businesses operate. It has also engineered radical changes and advancements in nearly all spheres of life. And as a result of the great impact of ICT, noticeable in every modern society, it is expedient for Nigerian institutions to latch onto ICT in order to continue to promote economic and technological advancements in our 21st century society. With objection, ICT is an integral part of modern life and contemporary education that can transform learners into technology leaders in a sustainable global economy (Chijoke, 2013). In Nigerian institutions, completely embracing ICT as an instrument for continuous teaching/learning and educational management, will produce a fundamental shift in the way teachers teach and in the way students learn. Therefore, dedicated efforts are needed to ensure that ICT policy statements are translated into reality thereby giving learners, the opportunity to acquire the necessary technological competence for seamless integration into any society they find themselves outside of their study schedule no matter the course of study. It is under this premise that it can be clearly stated that education which is an instrument par excellence for ensuring national development can only be achieved through effective management and administration using ICT and its aided infrastructure. Students in Nigeria today, live digitally as they use the Internet, social network, and multimedia fluidly in their lives outside of school but then they lack a parallel level of technological opportunities in their academic lives. It is possible to close this gap and by so doing, enliven the learning process creating better engagement in the process for the students. Though closing this gap is a challenge for our current educational system, we must strive to bring consolidation for the benefit of all stake holders.

Recommendation 1. The Government needs to be engaged further for more adequate translation of ICT policy statements into reality. 2. ICT Training is required to further Qualify teachers in higher institutions 3. For more effective implementation, the ICT policy and needs to be updated and areas of poor/obsolete Infrastructural specifications amended. 4. Here in Nigeria, urgent improvements are needed in the area of Electricity supply and this rests on the Government of the day.

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