

CURRENT TRENDS IN INFORMATION AND COMMUNICATION TECHNOLOGY: OPPORTUNITIES AND CHALLENGES IN THE NIGERIAN EDUCATION SYSTEM

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Abstract

This paper examined the opportunities Information and Communication Technology (ICT) presents to education and the challenges to its effective use in the Nigerian Education System. The global trends in new technologies have made all life activities practically impossible without them. In this regard, technology has developed the most vital devices for information management and interchange that are used to bring about effective communication by all and sundry. It is in recognition of this fact that this paper tried to explore possible areas information and communication technology can contribute to the development of education in Nigeria as well as highlight the grey areas that seem to pose challenges to the use of these new technologies in education.

Information in this 21st century is regarded worldwide as the newest most vital factor of production. Information is simply a processed data, news, knowledge or facts communicated to a person or persons. Information is simply a processed data, news, knowledge or facts communicated to a person or persons. Terry (2005) defines information as data that have been processed and communicated in such a way as to be useful to the recipient. Communication on the other hand is the sending, giving or exchange of information, ideas, message from one person to another. In other words, it is a process of transmitting information from the sender to the receiver through a medium or device.

Information and Communication Technology (ICT) are those devices that store,

process and retrieve data when they are needed. UNESCO (2005) defines ICT as a combination of all modern communication methods or techniques such as computer, telephone, fax, satellite electronic mail (e-mail), internet etc. Ademolekun (1996) also defines ICT as information super high way which brings people together, giving them easy access to each other and the information and services they need anywhere and anytime. Bull Dallinga and Hunter (1994) describes (ICT) as an improved and systematic process of acquisition, processing, management and use of information and information system. He associated (ICT) with the dynamic in the use and handling of information due to the development in the modern communication process which utilizes such gadgets as computers, telephones, facsimiles machines, cellular phones/handsets, cable television, satellite, electronic mails, internet, bulletin board, video teleconferencing, smart card/ credit cards/scratch cards etc.

Nwosu (2003), in trying to distinguish information technology with communication technology maintained that information technology focuses on the application of electronic gadgets for storage, retrieval, utilization, studying concepts, skills, processes and protection of information while communication technology comprises different types of technologies, networking and media which are utilized for processing, transmitting or communicating data. he noted that the introduction of Information and Communication Technology equipment such as computers, internet services, facsimile technology,

telephone, video, radio, television, telex, teleprinters, photocopiers, scanners, recorders, loudspeakers, microphone has resulted in complete job re-designation and acquisition of new skills in teaching and learning. As a result of these changes, many new machines and equipment has given teachers opportunity to increase their productivity and efficiency.

In the context of this work, Information and Communication Technology may be considered as the acquisition, processing, storage dissemination and use of vocal, pictorial, textual and numerical information via a computer, telecommunication and micro-electronics. These technologies have caused explosion in the array of services and applications available for processing information which at the same time have become faster, varied, flexible and reliable. That is why individuals and organisations now depend on the new information and communication technology for their breakthrough in all human endeavour.

In the developing countries such as Nigeria, the key issue that necessitate the immediate use of information and communication technology in its education system the dearth of instructional materials with up to date curricula content for the implementation of the new education policies. This become more imperative especially with the introduction of the Universal Basic Education (UBE) programme that saw to the explosion of students' enrolment into primary, secondary and even tertiary institutions with very few quality teachers. If the new technologies provided the ICT are made available in our institution of learning across the nation, the teeming population of students and the general public will have greater access to education thus making the objectives of education for all policy realizable. There is no gain stating the fact that because of the complexity of our Nigerian society, it is no

longer enough for students to receive information from the teacher only in a face-to-face delivery mode., it is also important to note that it is a truism that the use of ICT changes the learner's perception of the learning episode from mere absorption of information by heart through one way mode to dual system that emphasizes the learner's active participation in searching for information on his or her own.

ICT presents opportunities to education in many ways. Simpson (2000) identified the benefits of ICT to education to include that it facilitates in learning of new skills; it provides easier and quicker access to information; it reduces the drudgery of jobs with machine, it ensures easy curriculum and examination databank development; it guarantees effective and efficient educational record keeping; and it enhances regular interaction between education managers, administrators, teachers, students and stakeholders. Sambo (2005), added that ICT can be use as a medium for teaching and learning; serves as an assisting tool in education such as in marking tests/examinations, collecting data, documentation, communicating, reporting and conducting research/experiments; and helps to handle school chores and records such as results, attendance, school fees and general administration challenges to the use of ICT in the Nigerian Education system.

Opportunities information and communication technology (ICT) presents to education:

1) **Internet Services**

Nwosu (2003) describes internet as a global collection of many different computer network linked together. The internet enables a person to sit at his computer and exchange information with other computers and computer users anywhere in the world that have been connected to the internet. The internet as an information superhighway allows information flow through many interconnected computer networks. Here, the process of teaching and

learning can be done through any of the internet services such as Electronic mailing (E-mail), teleconferencing and file sharing. Internet services also provide media for sharing research finding among researchers and students. It helps in the development of the curriculum that can stand the taste of time. The internet provides websites for browsing information, electronic mailing, File Transfer Protocol (FTP), tele/video conferencing, research collaboration, information/equipment sharing, distance education delivery, job/employment shopping, recreation and entertainment, electronic book store catalogue and libraries etc. Internet enables teachers and students access information quicker, cheaper and easier.

2) **Computer Programming**

Computer according to Ezemoyih (2010) is an electronic processing machine which has the memory capacity to store, process and retrieve data very fast. Computer enables teachers and students to process large volume of data with speed, accurate and efficient in research study. It also helps to save data and information of large volume in small device that can be kept for a long time with ease.

3) **Power Point Presentation**

Ezemoyih (2010) describes power point as the machine presentation of software that enables users to create powerful presentations. Presentations created with power point can have audio and visual effects making them look professional as the occasion demand. Teaching and learning; seminar papers, conference paper and other educational activities can be done electronically using power point presentation slides. Power point allows the teacher to include formatted text, graphics, pictures, sound and animation in presentation. With power point, teachers can create instructional materials that can add variety and vitality to teaching and learning thus making teaching and learning more

refreshing, interesting, real, pleasurable and lasting in the memories of the participants.

4) **Telecommunication**

Becta (2007) describes telecommunication as the transmission and reception of information in the form of electromagnetic signals. These information is related to spoken conversation or computerized data and can be carried over through cable and audio-based transmission. Telecommunication has reduced the world into a compact global village. This is why this period in history is described as information or jet age when new information and communication technologies rule the way of teaching and learning in school. Teaching and learning has changed its traditional methods with the application of a robust, reliable and affordable ICT infrastructure. Telecommunication facilities and equipment includes the following: telephone and wireless phone, mobile or cellular phones, telegrams and mailgrams, electronic mails, tele/video conferencing, word processor, telex, public address system and microphones, satellite/internet services, fax and facsimile telegraphy, teleprinter, and electronic organizer. The use of telecommunication skills helps teachers and students to perform their duties with precision and enhance efficiency and effectiveness. Task performed with telecommunication gadgets saves time, reduces wastage and eliminate drudgery. It also improve quality, increase speed and better understanding of work performed.

5) **Tools in Handling School Chores and Records**

Records of students can easily, accurately and quickly be programmed into computers unlike the former excessive use of manual paper work. A computer is an electronic device capable of solving problems and or manipulating data by accepting data, performing prescribed operations and supplying the results

when needed can be used to prepare test/examination questions, mark tests/examination papers, report result, record attendance, school fees, analyse data etc.

6) **Distance Learning System (DLS)**

The type of education acquired by those who have no opportunity of regular school system can be improved through the Information and Communication Technology (ICT). This is one sure way of actualizing the Federal Government of Nigeria's equal access to education (FRN, 2004). Students can now access instructional materials via the internet at home as virtual classroom or through video teleconferencing on screen at convince.

7) **Production of Instructional Materials**

Advancement in Information and Communication Technology has made it possible to produce varied instructional materials in photocopies, printed texts and softwares such as films, video tapes/diskettes etc. Teachers and students can easily avail themselves of these materials for effective teaching and learning. This also offers employment opportunities to numerous people.

8) **Supervision of Instruction**

Nwaogu (1980), defined supervision as the process of bringing about improvement in instruction by working with people who are working with pupil. It is a means of helping teachers to help themselves to teach better, so that pupils will learn more. It is concerned with making adequate provision for all the conditions which are essential to effective learning through teaching and can only be effectively provided for through the use of modern Information and Communication Technology gadgets such as audio-visual aid and overhead projectors especially for practicing teachers during micro teaching and print out self evaluators form for old teachers for school supervisors.

9) **Individualised instruction**

This method of teaching takes care of the differences in students in our institutions of learning. Individualized instruction in form of radio or television education programme can go a long way in assisting students at home for improvement in their class work. Other form of individualise instruction such as educational columns in the newspapers and magazines/digests play complementary roles in assisting classroom teaching and learning. Computer assisted instructional programme can be of immense benefit. Ezemoyih (2010), noted that computer assisted instruction (CAI) packages used for instructional purposes include: record keeper, retriever of information, laboratory computing device, tutor and simulation.

10) **Medium for Teaching and Learning**

The use of electronic devices have enhanced the process of test/ examination administration, scoring of scripts and recording of marks as well as dichotomizing question papers to reduce examination malpractices. ICT also facilities the process of collecting data, documentation, communicating, reporting and conducting research experiments.

Challenges to the Use of ICT in the Nigerian Education System

While ICT has already invaded and dominated education in the developed world, its invasion into education system in most of the developing countries and Nigeria in particular has been very slow. This has been attributed to many factors among which are inadequate fund in the education system, irregular power supply, poor global service mobile (GSM), network providers, inadequate qualified programmers, engineer and technicians and poor knowledge/skills on the use of information and communication facilities (NIT, 2002). Ali and

Olisakwe (2000), also note that the third world countries which Nigeria belong are yet to come on board regarding ICT compliance for a myriad of problems which include: Low level of internet awareness and appreciation; low capacity base of municipal services such as internet and telecommunication providers; inadequate provision of electricity especially in the rural areas; majority of the citizen cannot afford computers due to poverty; and majority of the citizens are also computer illiterate. Sambo (1994), in his contributions asserts that although modern information and communication technologies increase productivity and efficiency, they can also be used to perpetuate fraud and cause substantial financial losses within the educational institutions. All these constraints to the use of ICT in education notwithstanding the fact remain that its indispensability in education cannot be over-emphasized.

Way Forward for Effective Use of ICT in the Nigeria Education System

In underdeveloped countries such as Nigeria, the key issues that necessitate the immediate use of information and communication technology in its education system are the dearth of instructional materials with up-to-date curricula content for the new education system. This became more imperative especially with the introduction of the Universal Basic Education (UBE) programme that saw to the explosion of students' enrolment into primary, secondary and even tertiary institutions with very few quality teachers. If ICT are provided adequately in our institutions of learning across the nation, the teeming population of students and the general public will have greater access to education thus making the objective of Education For All policy realizable. There is no gain stating the fact that because of the complexity of our Nigerian society, it is no longer enough for

students to receive information from a teacher only in a face-to-face delivery mode. It is also important to note that it is a truism that the use of ICT changes the learner's perception of learning from merely absorbing information by heart through one straight forward mode to dual system that emphasizes the learner actively searching for information on his or her own.

Conclusion

It is no gain saying that we are in the generation that are duty bound to speak the language of information and communication technology. Every individuals or organization are in mad rush so as to catch up with the ICT revolution that is now changing the way we do things in school including administration. But the effectiveness and relevance of the teachers/head teachers as well as education managers in the implementation of the curriculum programme, will in part, depend heavily on how well they apply ICT to the functions they perform at various levels.

Recommendations

For our system of education to catch up with the global trend of the new information and communication technology, attention of government through the appropriate agencies should be directed toward:

- 1) Introducing information and communication technology (ICT) as a subject in the curriculum at all levels of the education system.
- 2) Developing a comprehensive training programme to familiarize all teachers with ICT and its potentials and make them at least computer literate.
- 3) Upgrading libraries facilities with ICT system.
- 4) Establishing a formal ICT centres with trained or specialized staff in all the local government areas across the country.

- 5) Procuring and distributing ICT complaint instructional materials such as micro softwares to schools for effective teaching and learning.
- 6) Encouraging private sector such as World Bank, UNESCO and other development agencies participation in the ICT serve delivery in both public and private educational institutions.
- 7) Appropriating special fund for ICT development.

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Put differently, Information and Communication Technology is the use technological tools in the collection, arrangement, and dissemination of information. As well as the re-arrangement, management, manipulation, and transfer of such information. In fact, Information and Communication Technology is so important that if not for this gadget on my desk, I wouldn't have been able to pass this information across. And if not for that gadget on your hand or desk, you would probably not be reading this all important post. Information and Communication Technology has changed everything about human existence. This has not only reduced cost of education, but has also broken boundaries and decreased dependence on classroom learning.