

ENHANCING INFORMATION AND COMMUNICATION TECHNOLOGY EDUCATION IN ACADEMIC INSTITUTIONS IN THE DWINDLING ECONOMY

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Abstract

This paper examined the indispensability of Information and Communication Technologies (ICTs) as the major pivot and driven force upon which ICT education can be enhanced in dwindling economy. Relevant literature which were germane to the study were searched. Information and Communication Technology (ICT) has no doubt changed the processes of teaching and learning at all levels of education worldwide. The paper outlined the importance of ICT driven instructional materials in teaching and learning as well as stating the ways forward. So also the significance of some of the initiatives lunched by the government and non-governmental organizations towards improving ICT education. Access to relevant and sophisticated ICT driven instructional aids facilities in our academic institutions is crucial for effective and efficient teaching and learning activities which will help to have a quality product of university graduates that can compete with other graduates globally.

Key word: *Dwindling, Economy, Education, Enhancing, Information, Communication, Technology*

Introduction

Education is a necessity not a privilege, as such it is a right for every individual whether male or female, rich or poor to be educated. "As it is popularly said, if you think education is expensive

then try ignorance". No doubt ignorance is dangerous if not more dangerous and deadly than HIV/AIDS. Therefore, it is an obligation on every parent to enroll his/her child in school. Equally it is the responsibility of the government to provide, make accessible and affordable education to all class of citizens no matter the economy situation of the country. Oyovwe-Tinuoye and Adogbeji (2013) asserted that education is a key for transformation of individual for national development. A nation is said to be valued when a sizeable number of the citizens have quality education. Oyovwe-Tinuoye and Adogbeji (2013) outlined further that quality education includes:

- ❖ Learners who are healthy, well-nourished and ready to participate and learn and supported in learning by their families and communities;
- ❖ Environments that are healthy, safe, protective and gender-sensitive, and provide adequate resources and facilities;
- ❖ Content that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in the areas of literacy, numeracy and skills for life, and knowledge in such areas as gender, health, nutrition, HIV/AIDS prevention and peace;
- ❖ Processes through which trained teachers use child-centred teaching approaches in well-managed classrooms and schools and skilful assessment to facilitate learning and reduce disparities;
- ❖ Outcomes that encompass knowledge, skills and attitudes, and are linked to national goals for education and positive participation in society (UNICEF, 2000).

Methodology

This study adopted a theoretical approach using data gathered through the content analysis of secondary data such as journals, textbooks and internet resources. The paper also present

evidence from literature of other related studies on enhancing information and communication technology education in the dwindling economy.

Conceptual Elucidation of Main Terms

The key terms that would be elucidate here include education and information and communication technology.

Education

Within the context of this paper, education is defined as a system of acquiring and imparting of knowledge through teaching and learning especially at a school or similar institution. Furthermore, education has been regarded as a social oriented activity. With the world moving rapidly into electronic environment, Information and Communication Technology education is becoming more and more essential. It has been suggested that Information and Communication Technology Education can be enhance by developing the kind of graduates and citizens required in an information society; enhancing educational outcomes and improving the quality of teaching and learning (Wagner, 2002; McCormick and Scrimshaw, 2001; Flecknoe, 2002 cited in Oyovwe-Tinuoye and Adogbeji (2013).

In recent times the use of computers and Internet has tremendously enhanced the efficiency and effectiveness of education at all strata both formal and non-formal systems. Nwosu and Ogbomo (2012) opined that, the field of education has certainly been affected by the penetrating influence of Information and Communication Technology worldwide and in particular developed countries. That the need to re-orient and re-engineer formal education patterns for transformation of citizens is vital. They further asserted that, Information and Communication Technology has greatly facilitated the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and

execution, and widen the range of opportunities. According to United Nations Educational, Scientific and Cultural Organisation (UNESCO) (2003) the vision of education emphasises a holistic, interdisciplinary approach to developing the knowledge and skills needed for a sustainable future as well as changes in values, behaviour, and lifestyles. Garrison and Anderson (2003) argue that the application of Information and Communication Technology in the teaching and learning process can enhance Information Communication Technology Education in several ways such as increasing learner motivation and engagement, providing facilities for the acquisition of basic skills, and training and re-training of teachers on the applications of Information and Communication Technology such as video tapes, television and multimedia computer software that combine text, sound and colorful moving images which can be used to provide challenging and authentic content that will not only engage the students in the learning process but as well making learning concrete to achieve better future. Pelgrum and Plomp (2008) stated that, acquisition of Information and Communication Technology skills include the ability to become lifelong learners within a context of collaborative inquiry and the capacity to work and learn from experts and peers in a connected global community.

In developing countries, Nigeria for example, Information and Communication Technologies have the potential for increasing access to and improving the relevance and quality of education (Nwosu and Ogbomo, 2012). They stated further that, when used appropriately, Information and Communication Technologies helps to expand access to education, strengthen the relevance of education to the workplace, and raise educational quality by creating an active process connected to real life. Information and Communication Technology is imperative as it is now the driven force of promoting other disciplines or professions. This paper therefore, focuses on ICT

applications in enhancing Information and Communication Technology education in the dwindling economy.

Information and Communication Technology (ICT)

ICT is an acronym for Information and Communication Technology and a term used to refer to technologies that are used in creating, accumulating, storing, preserving, editing and disseminating of information in various forms or formats. Bandele (2006) defined ICT as a revolution that involves the use of computers, internet and other telecommunication technologies in every aspect of human Endeavour. These include: Internet access, CD-ROMS, electronic mail, telephone systems, online databases, library services and fax machines. On the other hand, Reddi (2012) grouped ICTs used in education into two categories namely: synchronous and asynchronous media. Synchronous media require all participants to be together at the same time even though in different location, examples of synchronous are audio graphics, audio conferencing as in a telephone conference, broadcast radio and television, teleconferencing, computer conferencing such as chat and internet telephony. Asynchronous media enable the participants in the learning process to be at different places and at different times, examples of asynchronous media include: audio and video tapes CDs, email, computer files transfers, virtual conferences, multimedia products, offline and web based learning formats. Teleconferencing is used in both formal and non-formal learning contexts to facilitate teacher-learner and learner-learner discussions, as well as to access experts and other resource persons remotely. In open and distance learning, teleconferencing is a useful tool for providing direct instruction and learner support, minimizing learner isolation (Oyovwe-Tinuoye and Adogbeji 2013).

Information and Communication Technology has made impact on the quality and quantity of teaching, learning and research in the institutions using it (Kwacha, 2007). According to Olobube, Ubogu and Ossai (2007), the introduction of Information and Communication Technology usage, integration and diffusion has initiated a new age in educational methodologies, thus has radically changed traditional method of information delivery and usage patterns in the domain as well as offering contemporary learning experience for both instructors and learners. In another opinion, Information and Communication Technology has the potential to accelerate, enrich and deepen skills, motivate and engage students in learning, relate school experiences to work places, create economic viability for tomorrow's workers, contribute to radical changes in school, strengthens teaching, and provides opportunities for connection between the school and the world (Yusuf, 2005). Other ways in which ICT can be used in education as stated by Ikelegbe (cited in Okeh & Opone, 2007) to include:

- Supporting conventional classroom work; the teacher could ask his/her students to use ICT approach;
- Helping in the design and development of learning materials. A lot of materials can be downloaded from the Internet. Such materials must however be adapted to suit the specific instructional objectives;
- Accessing electronic teaching materials such as books, journals. These can be accessed, stored and analysed by the use of ICT;
- Accessing virtual library "stocks" electronic versions of books, journals, etc.;
- Providing access to the world of resources especially in electronic form or format;
- Playing a key role in educational administration.

- Students' data, personnel administration, purchasing and supplies, advertisement, etc can be handled with ease using ICT;
- Facilitating independent study and individual instruction especially on the open distance-learning programme;
- Making learning more vivid and engaging;
- Assisting the teacher in assessment and testing; and
- Bringing a permanent solution to brain drain problems as we now live in a global village.

Different scholars have stressed the importance of the use of Information and Communication Technology driven instructional materials in any level of education, ranging from elementary to higher level. Abujaber (cited in Torruam and Abur, 2013) stated that, the importance of instructional materials for both teachers and students cannot be over emphasized. The use of ICT-driven instructional aids is essential to support teaching and learning because other phenomenals cannot be easily expressed without the support of graphics maps, video, pictures etc. Information and Communication Technology driven instructional aids media, if provided and used properly can enhanced teaching and learning.

It can also enhance ICT education as it has the potential to accelerate, enrich, and deepen skills; motivate and engage students in learning; help to relate school experiences to work practices; help to create economic viability for tomorrow's workers; contribute to radical changes in school; strengthen teaching, and provide opportunities for connection between the school and the world. Information and communication technology (ICT) can make the school more efficient and productive, thereby engendering a variety of tools to enhance and facilitate teachers' professional activities (Yusuf, 2005).

ICT-driven instructional aids can also enhance ICT education as it has the potentials if effectively used for regulating the pace of information flow among different class of learners under the same classroom. ICT-driven instructional aids addresses individual differences. Students are aroused and stimulated with the nature and the beautiful appearance of the materials which will make them to Settle down and learn what the teacher had prepared to teach. Anyawu (cited in Torruam and Abur, 2013) observed that pictures-stimulate and help further study as well as making children to take active interest in the topic presented.

The use of ICT-driven instructional aids in teaching and learning process makes learning real, practical and more permanent to the learners. It makes conceptual abstraction more meaningful. Esu (2004) states that; instructional materials are valuable assets in learning situations because they make lessons practical and realistic. They are the pivots on which the wheels of the teaching and learning process rotate. Since they concretize issues and facilitate revision (recall) activities. They provide very unique opportunities for self and group evaluation for the teacher and the students alike. They capture the student intellect and eliminates boredom; make the work easier, neater, boosting for clarity and more appeal.

ICT-driven instructional aids if properly used allow for a flow and transmission of ideas from the teacher to the students and likewise from the students to the teacher or from one group to other. The learners will be able to see, touch, spell what has been taught about by the teacher and be curious to ask questions that would be very helpful for effective evaluation (formative) of the teacher and instructions in subject matter.

With the use of projected and electronic materials such as television, overhead transparencies and computer especially, instructions are packaged in a very broad manner and which take care of wide range of learner in a classroom with less stress and time. Many students will be able to

learn faster as the package takes care of various learners' interest at the same time. Teacher can handle a very large class conveniently as the teacher is teaching, guiding and displaying the content of the subject under discussion on the wall with the use of projector. As this can also enhance ICT education. Teachers should be up to date and able to provide reliable and useful information for the learners with the use of ICT driven instructional aids, it can effectively be used to ultimate, shorten information from various sources for the purpose of comparison and contrasting ideas. It helps in perception and retention of information or knowledge in learners. This is in conformity with a Chinese proverb by Xunzi (340-245BC) W³ that said "What I hear, I forget. What I see, I remember. What I do, I understand." This Confucian scholar makes a strong point that when it comes to learning. Hearing is not as good as seeing, seeing is not as good as experience, and true learning is only evident when experience produces an action.

Emma & Ajayi (2006) asserts that "figurative speaking instructional materials enable the teacher to be in more than one place at a time and to address several issues at a time. For example, a video material could be on while the teacher moves around to explain to individual's students the subject contents in response to requests based on individual differences on problems. While the video material continues, providing details of the assignment the teacher also becomes part of the listening audience. It reduces verbalism or repetition of word by the teacher without knowing their meaning and also adds Variety in reinforcing verbal messages by providing a multi-media approach. Esu (2004) stated that instructional materials are indispensable factor in a teaching learning process. This is because words or verbalization has been found to be inadequate for effective teaching.

The purpose of using ICT-driven instructional aids is for the students to internalize the situational issues happening around his/her totality, the students will be able to identify crucial

issues and address these issues if properly inculcated with the use of instructional materials. Chuba (cited in Torruam and Abur, 2013) posited three importance of teaching aids in class, as; Easing off teachers' teaching task, satisfying different children's learning patterns and In-building of special child's or learner's appeal by teaching aid manufactures, which help to motivate or captivate interests of the learner. Ikwumelu (cited in Cluba, 2000) outlined the following points as the reasons why teachers must apply teaching aids in classrooms: teaching aids helps to concretize abstract issues and topics; they motivate pupils' interests in topic being discussed, they develop continuity of reasoning and coherence of thought which augurs well with the inter-interdisciplinary nature of other subjects, Teaching aids save time and as things presented are almost self-explanatory, energy is saved in too much talking and writing and They help to appeal to pupil or students interests and this is because, they tend to appeal to children's difficulties as well as take care of children's differences.

Enhancing ICT Education

The Federal Government of Nigeria (FGN), in the National Policy on Education (4th ed. 2004), acknowledged the remarkable role of Information and Communication Technologies in the modern globe. This makes the FGN to integrate ICTs into education in Nigeria. To actualize this goal, the document states that government will provide basic infrastructure and training at the basic school level. This lead to the introduction of computer education in basic schools in 2004 and made it as a pre-vocational elective subject (Federal Republic of Nigeria, 2010).

It should be noted that attempt was made in 1988 with the plan to establish pilot schools and diffuse computer education innovation first to all secondary and tertiary schools, and then to primary schools. The distribution and installation of personal computers were made but the take-

off proved abortive (Aduwa-Ogiegbaen and Iyamu, 2008). For ongoing ICT projects, like the School Net which was intended to equip all schools in Nigeria with computers and communications technologies, yet some Schools have not benefited from the project especially Schools in the rural areas.

The Federal Ministry of Education launched an ICT-driven project known as School Net (www.snnng.org) which was intended to equip all schools in Nigeria with computers and communications technologies (Federal Republic of Nigeria, 2010). In June 2003, at the African Summit of the World Economic Forum held in Durban, South Africa, the New Partnership for African Development (NEPAD) launched the e-Schools Initiative, intended to equip all African high schools with ICT equipment including computers, radio, television sets, phones, fax machines, communication equipment, scanners, digital cameras, and copiers, among other things. It is also meant to connect African students to the Internet.

The Federal Government of Nigeria commissioned a Mobile Internet Unit (MIU) operated by the Nigerian National Information Technology Development Agency (NITDA). The MIU is a locally-made bus that has been converted into a mobile training and cyber centre. Its interior has ten workstations, all networked and connected to the Internet. The MIU is also equipped with printers, photocopiers, and a number of multimedia facilities. Internet is provided via VSAT with a 1.2m dish mounted on the roof of the bus. It is also equipped with a small electric generator to ensure regular power supply. The MIU takes the Internet to places and various primary and high schools. The number of buses is so small; however, most schools in rural areas have not yet been covered (Ajayi, 2003 cited in Adomi and Kpangban, 2010).

Furthermore, the implementation of ICT education should be given much more priority by the government both (federal and state). They should demonstrate active participation, initiative and good will to enhance ICT education at schools. From the foregoing it is imperative that government has intention to position ICT education in Nigeria but the move cannot be said to be very successful. Partly due to the dwindling economic situation the country is facing: low pricing of crude oil and high epileptic exchange rate.

Conclusion

Education and ICT has significance correlation. Information and Communication Technology (ICT) is a driven force that has changed and impacted enormously on various fields of human endeavours such as librarianship, architecture, medicine, banking, tourism, law and engineering. The paper highlighted the significance of making use of Information and Communication Technology driven instructional aids in teaching and learning of ICT in our academic institutions at all levels. Once these are put into use, Information and Communication Technology Education would be enhanced despite the dwindling economy.

Ways Forward

- ICT provision is no doubt cost intensive, as such government alone cannot foot the cost of its provision. Therefore, there is the need for collaboration with non-governmental organizations/donor agencies to assist in providing ICT education.
- All stakeholders in education sector such as administrators, parents, teachers, local business leaders, elected officials etcetera must put their hands together to ensure successful ICT education at all levels. This is because ICT has come to stay.

- ICT requires a lot of electric energy. In the face of erratic power supply, there is need for standby electricity generator and installation of power inverter system using both solar and electricity to charge them.
- The MIU initiative is a very sound idea. However, sustainability is the main obstacle. It would be good if states and local governments are stakeholders. Involving local governments will simply taking ICT education to the rural populace.
- Education instructors at all levels should be encouraged to use ICT driven teaching aids considering the importance of practical knowledge they contain.
- Teaching and learning process should be re-oriented and reformulated from traditional methods to reflect electronic means.

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