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ICT: Vehicle for Educational Development and Social Transformation

Adesegun B. Titus

Abstract

The world has become a global village as a result of the information tsunami and knowledge explosion being experienced as a result of Information Communication and Technology (ICT). The industrialized nations are miles ahead of the developing countries as a result of the information revolution. Education is a process by which society transmits its values, norms, mores, and ethos to generation yet unborn across time and space. The medium of transmission cuts across formal, non-formal and informal settings. This paper examines the impact/roles of ICT on education as an agent of social transformation and the hindrances of developing countries such as Nigeria in adopting ICT to aid their educational development and transformation of the society. The interconnection between information, ICT and social transformations is succinctly discussed in this paper. Furthermore, the paper examines the relationship between ICT and education and suggests measures that can be taken in adopting the use of ICT in Nigeria as well as the crucial role of government and the educational sector in this regard. The paper concludes that ICT make a significant contribution to the educational development and the social transformation of the Nigerian society.

Keywords: ICT, education, development, communication, social transformation

1. Introduction

The Integration of Information Communication and Technologies (ICT) into education takes the front burner in many developing countries of the world, more so with its potentiality of replacing the moribund and outmoded educational system of "chalk and talk" with modern technological tools that makes teaching and learning more meaningful to both the teacher and the taught. Active participation of private investors in driving the information revolution is necessary for the provision of an appropriate framework for social engineering and transformation, as the federal government must not be solely responsible for the provision of necessary wherewithal for ICT to cater for the needs of the entire citizenry. In this era of information boom driven advanced technology, accumulation of information is a major booster for social interactions and dynamics. ICT acts as a catalyst and at the same time a tool for inducing educational reforms thereby transforming our students from mere job seekers to employers of labor that are knowledge and technology driven. The focus on the use of ICT has been the needed impetus for

the escalation of electronic transactions that transpired between the people and/or organizations in all facets of human endeavor, thereby turning the world into a universal community propelled by technology advancement. As a result of the foregoing, level of interaction of man with the computer, internet and other IT facilities has increased tremendously and this therefore makes it a major player in knowledge dissemination to human societies in the field of education. Based on paradigm shift in the global spectrum tilting towards ICT, stakeholders in the education sector of most developing countries in other to avoid being left behind are involved in the repackaging and redefining of their educational system by focusing on various approaches of integrating ICT into the delivery of instruction so as to improve the quality of both teachers and learners by emphasizing competencies in areas of cognitive disposition, decision making process, management of dynamic situations, teamwork and effective communication, and the development of necessary skills and knowledge required in this digital age [1]. To fully achieve the goal of integrating ICT into education, the federal government of Nigeria in the year 2001 established and published the national policy on Information Technology Development Agency (NITDA) to serve as a regulatory body for the implementation of the policy, nevertheless, this document falls short of tackling the issue of integrating ICT into the Nigerian education system, and without providing the panacea for local/homemade software to cater for the needs of its citizenry nor the method of infusing it into the school curriculum without causing a setback [2]. Further, most countries in the developing world are making concerted efforts aimed at improving their domestic programs for fusion into education curriculum. To avoid the abuse of ICT in education, policy planners must provide a detailed guideline for participants/actors in the education industry for proper fusion of the computer and other ICT features into the education system. As man is dependent on air, food and shelter for survival, such as the magnitude of the importance of information to man as information are no longer seen as a luxury but an indispensable factor for human survival and development. Information is considered today as one of the basic needs of people after air, food and shelter [3]. Due to the increase in level of awareness about ICT in every human facet, the Nigerian government in 2004 introduced a plan of infusing ICT into the educational system at the primary, secondary and post-secondary level of education. The reason for incorporating ICT into education is not far-fetched as its introduction is aimed at reinforcing the effectiveness and efficiency of the education sector to complement the responsibility of integrating IT educational practices into the school system.

2. The meaning of ICT

According to Abimbade et al. [4], they aver that from time immemorial, man has invented various machines for the survival and fulfillment of their needs, but with the emergence of computers the last millennium has witnessed a quantum leap through the level of impact of technological advancement in every sector. Information communication and technology (ICT) comprises of traditional and modern technologies used in the transmission or dissemination of information to a target audience. The traditional ICT products include; the printed pages (newspapers, journals, magazines) radio, and television, films and so on while the modern technologies comprise of email, voicemail, facsimile, internet, automated notice panels and mobile phones, among others.

The scope of ICT is broad and covers areas such as the internet service provision (ISP), mass media coverage, telecommunications equipment services and

maintenance, information technology equipment and services, commercial information providers, and other related information and communication activities and international networking activities.

Michel's and van Crowder [5] summed up the meaning of ICT in their opinion as any electric device used for storing, acquisition, processing and, transmission of information by means of voice, sms, chat, text, data, graphics and video. In the words of Ejiaku [6], ICT doubles as a pivot for economic and technological growth through the means of modern scientific development and globalization. For the purpose of maximum efficiency and optimal effectiveness, ICT requires design, installation, configuration, training and maintenance of infrastructure. The emergence of ICT creates a level playing ground in the field of education by granting access to as many people as possible to generate and disseminate information for the end users, thus playing an active role in the education industry.

The concept of ICT in education is premised on four basic features viz

   i. ICT as an object- meaning what is learnt about ICT

   ii. ICT as a tool of assistance to both the teachers and the students to support learning

   iii. ICT as an instrument of instruction

   iv. ICT as a tool for organization of management in institutions [7].

2.1 Roles of ICT

Despite the slow response of integrating ICT into education in developing countries of the world, the benefits that accrue and the roles of ICT are numerous that it cannot be waved off. First, ICT being infrastructure-based led to a growing increase in information related activities germane for the socio-economic development of a nation and it lends its support as the fulcrum of complex societies, in the transmission and dissemination of information and guidelines between the various segments of such societies for efficient running of the system [8].

The gains derived from ICT spread across the various strata and this is noticeable in the areas of education (e-learning); job training, healthcare, food security, environmental management, government efficiency, e-commerce, e-banking etc. The influence of ICT on education is robust through the provision of enormous tools for enhancing teaching and learning. The positive effect of ICT on teaching and learning is achievable given the accurate atmosphere and conditions including the provision of appropriate facilities, adequate training and support. ICT also offers the potentials to cater for the learning needs of learners through individualized instruction in which the student learn at his own pace; promotion of equal opportunity to the learners, provision of learning materials (soft wares) and also promote interdependence of learning among learners. It is important to find out the scope of operation of ICTs use and its impact on our societies by concurrently examining its frame and extent of its outreach on a large scale.

Studies have shown numerous support ICT provides in the course of instruction delivery and this covers different fields viz creation of prospects for interaction between learners and knowledge acquisition. Equally some of the vital motives for teachers' use of technology in education include motivations, distinctive instructional abilities, and high throughput of teachers, which are critical skills germane for the information age which also lends credence for the emergence of new techniques.

Communication and access to information can be an empowering social process, therefore, ICT have the potential inbuilt capacity capable of creating a new information and communication models through its end-to-end information and communication flow at a relatively cost. The main role of the teacher is to act as an agent of change especially in the relationship that transpires between the student and technology. Integration of Information communication and technology in education has been the major focus of studies in the past two decades at local, national and international fora. These studies assessed the suitability, importance and application design of available ICT facilities; challenges confronting the use of ICT in the delivery of instruction; for instance social studies in schools and the effects of the computer on students' achievements. Studies conducted recently reveal that there is a strong correlation between teachers' attitude and behaviors towards the use of the computer as a medium of instruction [4].

The successful integration of ICT into education is hinged on the teachers' attitude towards knowledge gained outside of the traditional methods of teaching and their readiness to implement new knowledge acquired through technology. Teachers have the opportunity to modify their instructions and create better understanding with more emphasis now placed on students rather than the teachers and the students having more opportunity to interact with classmates and maximum use of the computer and internet to suit their learning needs. However, many teachers are more confident and comfortable with their traditional teaching methods in place of the modern method hence, ill-prepared, edgy and grossly inadequate using ICT gadgets in educational environments [9]. A study carried out by Anderson and Weert [1] revealed teachers desire to be computer-literate but not using ICT for the purpose of delivering instructions, rather, prefer computer-literacy to computer-application. However in a related study, it revealed the significant relationship that exists between social science teachers' computer level of awareness and computer application leading to a corresponding increase in the teacher's application of computer in their teachings. Further study reveals that emails, internet and other instructional software are packaged in CDs used as computer applications in the classroom by the teachers. ICT doubles as the driving force for growth and source of energy for the social and economic empowerment of developing nations such as Nigeria and as a result leading to a reduction in the level of unemployment could be attributed to the empowerment of the masses through ICT in the emerging Global Digital Network Information Economy.

2.2 Social transformation

Should society be embroiled in the cocoon of customs and tradition or flow with the tide of the information technology revolution that cuts across nations of the world in the last two and a half decades? In other to place this question in the right perspectives, there is an urgent need for social transformation.

Social transformation, therefore, can aptly be described as the tidal waves which brought about an alteration in the social patterns, cultures and values, political and economic relations, and impacted upon local communities and national experience. Going by this definition, the entire universe has become a global village through the means of technology and thus increasing the rate at which both humans and materials travel across countries. When this happens, the concerned sector or an aspect of the society can easily be influenced. Social transformation connotes social change; it is a change for a better quality of life and this implies progress, advancement or modernization. Social transformation can reflect on attitudes including values, beliefs and religion. It can also reflect on material practices, including technology, material customs (family, transportation), built environment (architecture,

planning). ICT as an instrument for empowerment and social transformation is yet to be fully actualized as a result of the dislocation in the structural thinking that differs from the pursuit of the much sought change. This accounts for the set-back being experienced by developing countries in applying the theories of ICT as a tool for empowerment and social transformation. The place of education in transforming the society in developing countries is not in doubt and this is reflected in the way society and culture react to political, social and economic disorders. Social transformation has contributed to the development of our nation, Nigeria. Among the notable significant positive effect of social transformation is the reduction in the level of illiteracy in the countries educational facilities as a result of laudable private sector initiatives as well as limited contributions on the part of the government.

Distance learning centers also offer the opportunity of schooling to members of the populace who do not have the wherewithal for full-time program. An example is the Open University system introduced by the Nigerian government and run by various institutions of learning across the country as sandwich or external degree programs in satellite campuses and the open distance learning (ODL) in South Africa which eliminates the barrier of face-to-face classroom teaching and reduction in contact time. The dominance and central control of the internet as a driving force in the process of economic globalization is not a mirage but reality backed up by its intelligence and ability to reach out to the end-to-end users. The emergence of ICT as a game changer triggered major structural changes in almost every facet of human society, birthing a rapid and progressive social transformation.

2.3 Educational development

Education which is a life-long process commences from birth and ends at death i.e. from "cradle to grave." It is a process of continuous training and instructions transferred from the parent to the child; teacher to the learner and learner to learner and of course from the environment to the learner. The essence of education is skill development and knowledge acquisition. Education as a field of study deals with the process of instruction delivery and also acts as an instrument of social change and development that constitute an essential input in the development process itself. In other words, it is concerned with how an individual is integrated into his society; promotes his socio-cultural values and contributes to the development of his immediate environment with the ability to stand on his own and take decisions independently.

Education raises people's level of productivity, creativity and promotes entrepreneurship and technological advancement. Furthermore, it helps in securing economic and social progress for the improvement of the income distribution. Access to different employment opportunities as a result of education leads to the reduction of the poverty level in society. According to Chakraborty et al. [10], education is a precursor and acts as an instrument and an agent of change that prepares the society for a social, industrial and technological revolution. Drawing from the events in the field of education in India, most colleges lack the focus to create employable graduates as their curriculum is defective and only centered on preparing the students to pass exams and thereafter join the labor market seeking for employment. Therefore, there is an urgent need for an update on the current curriculum to meet up with the changing scenario of the world. An education system that does not bring about a change in the life of the recipients is, to say the least, dysfunctional and such should be discarded with without further delay as education is an agent of change in every society.

In recent times there is a shift from indigenous (traditional) education to a technology driven (modern) education all over the world and this could be attributed to

the emergence of IT education that resulted in the tsunami in the education industry. This is informed by the determination to correct the anomalies identified in the education curriculum of some developing nations so that they can be at parity with the developed nations of the world.

2.4 Education, ICT and social transformation

Education is regarded as the backbone of national development. Education, therefore, is the key to social transformation. According to Lawal [11], self-realization is achievable through education if, there is proper and effective integration of the individual into the society through a well-tailored socialization process; developing economic, political, scientific, cultural and technological processes. In a world where the only thing constant is change, education acts as that change agent and must be embraced by all and sundry. Education plays a significant social role in this modern, complex and industrialized society acting as a catalyst for social change and transformation. Education initiates, prepares, directs, and determines the nature of social change or transformation that will take place in society. Anyaogu [12] is of the opinion that education is indispensable for human and societal development. It is both the engine of and catalyst to development. As a result of the realization of the importance of education to development, educators from all over the world gathered at Thailand in 1990 at a world conference tagged "Education for All," where a declaration for the eradication of illiteracy was pronounced with Nigeria as a signatory. The relationship between ICT and education are numerous and this has been clearly demonstrated in the developed countries of the world. ICT has been integrated into the various learning environments whether formal, non-formal or informal education. For instance, many people in developed societies have access to ICT gadgets through which they gather much information that affects them or influences their decision making. In formal education, ICT is used in developed countries to achieve a positive result. The use of microcomputers in the classroom in the United Kingdom (UK) has made it easier for teachers to emphasize the practical application of mathematics than ever before [4]. In non-formal education, distance education programs gained global recognition as an alternative form of education due to the introduction of Information communication and technologies (ICT) [13]. The introduction of ICT in the school curriculum resulted in an upsurge in the number of students been catered for and also improvement in the level of instructions. For instance the Saudi Arabian government in other to take learning to the doorsteps of its citizens introduced distance (mobile) learning. To achieve this objective, six sub-structures for higher and distance education were instituted with the following objectives: "(1) to link the electronic-learning educational gateway system; (2) to connect management in electronic-learning; (3) to launch an award of distinction for electronic-learning in university (4) the National repository for learning object Taiseer service for e-learning and (5) the establishment of Saudi national center for e-learning and distance education for e-learning and distance education for university education in the kingdom of Saudi Arabia and; (6) developing the academic and administrative skills and management system, e-learning and distance education, building electronic curriculum contents and forms of digital strand print for a number of university courses and to build the educational portal for distance learning and e-learning and awareness program for electronic education and distance education [14]". The integration of ICT into education has become a process whose implications go far beyond rhetoric; it is a technological tool that brings an advancement in the educational milieu. Consolidation of worthwhile learning grew due to the introduction of teaching construction and method of a building based on technological use of education. The ICT revolution is

enhanced by the use of educational tools that led to the improvement of the educa-
tion quality of the students through the use of technological tools such as calcula-
tors, TV sets, and voice recorders, among others to facilitate learning.

In 2004, Nigeria took a step similar to that of Saudi Arabia in Abuja, at the
conference for ministers in the sub-continent of Africa on "the Integration of ICT
in education" and the following sectorial recommendations reached can be sum-
marized as the integration of ICT to cover all strata of education from primary to
tertiary education and other areas, such as e-libraries, and ICT in technical, voca-
tional and professional training" [15]. ICT as a means of acquiring information has
potentials for social transformation. According to IDRC's Gender and Information
working group (GIWG) "Acquiring knowledge is the first step towards change,
whether this change is technological, social economic, cultural, legal or political.
Information is the catalyst, fuel and product of this process of transformation…"
ICT has potentials for far-reaching changes towards development and it can ensure
people-centered development that stems from the transformation process. Using
ICT as a vehicle for educational development requires careful planning and imple-
mentation with the people as the benefactors. It is pertinent to ask at this juncture,
of what relevance is ICT in the transformation of the society? What are the major
determinants of social change actors? Inspite of different meanings ascribed to
social transformation, in this context, it simply implies moving from a class society
structure to a classless society structure where there is unbiased sharing of political,
economic, social and cultural powers among the people.

2.5 ICT in developing countries towards the promotion of social causes

Concerted efforts are being made in developing countries to use ICT to address
social issues or generate information targeted at ensuring an improvement in
the quality of life of the people. Social transformation has contributed to the
development of Nigeria as a nation. Among the notable possible effects of social
transformation is in the area of education where facilities are made available by
private organizations, individuals, missionaries, international organizations as
well as the government at the federal, state and local government level which result
in a tremendous reduction in the number of illiterate persons. The emergence of
distance learning centers and satellite campuses of various institutions of higher
learning also offer the opportunity of schooling to members of the public who do
not have time for full-time university academic program. For example, the national
open university (NOUN) introduced by the Nigerian government where course
materials are packaged in compact disk (CD) for students to access and this affords
the students concerned with the opportunity to learn at their own convenience. In
the area of health and education, in Botswana, "Talkback and break the silence"
is an educational television program aired on Tuesday 12 noon and it aims at
teachers sensitizing their students about combating HIV/AIDS transmission and
integration of control mechanisms into teaching and learning. It was reported that
the program has a strong effect on the listeners. In Tanzania, Twende Na wakati
("let's go with time") a radio soap opera targeted at reducing the size of the popula-
tion and fighting the scourge of HIV/AIDS Infection. According to Erwat [16],
fifty-five percent of Tanzanians listened to it. The radio program that was aired
consecutively for a period of time recorded appreciable success with about 23 % of
the listeners reported to have adopted family control techniques and 82% reported
a mechanism for preventing HIV. In Bida, Niger state north central of Nigeria, a
multi-media campaign approach was used in combating the alarming rate of HIV/
AIDS pandemic. The Center for Communications and Reproductive Health Service
(CCRHS), Bida, executed the campaign which was funded by the U.S.A. The project

sought to educate a target population of 50,000 men, women and youth about safe motherhood, human sexuality and reproductive health and sexually transmitted infections (STIs) in addition to HIV/AIDS. The multimedia facilities used includes-the TV, radio, music/drama outreach programs, radio tapes, visits and workshop/seminars in secondary schools, posters, handbill and stickers. The result revealed that awareness of HIV/AIDS rose to a 100% against 83.3% on non-awareness in the baseline data. Majority of the population 85% could state birth control methods. Furthermore, 91.6% indicate blood and sex transfusion as a means of HIV/AIDS transmission as opposed to about 12% in the pre-intervention survey data [17] that was carried out.

In Peru, Video-based training has been used to reach rural farmers as part of government effort to bring about reform in the agriculture sector. The use of Audio-visual equipment helped to overcome high illiteracy in rural areas and also maximize the effectiveness of extension agents training activities. One hundred and forty (140) producers and one hundred and twenty thousand rural farmers have been trained and reached respectively by the program [17]. The impact of ICTs social structure on community-based relationship is expressed as a unit big enough (Meso-structure) to accommodate appreciable network effect and equally small enough to cater for local users to maintain their inter-personal relationships. There is equally a shift towards large scale operations but constrained by the availability of sufficient resources to sustain communication across its components.

The pace of development globally is massive especially for ICT-compliant society where big corporate organizations dominate the playing field resulting in a corporate-mediated social paradigm shift. The tempo is unmatched by the production systems put in place as ICT now dictates the policy and the social projects. The scope of their operation is global in outlook and monopolistic in operation, hence bringing about minimal state control. The social paradigm shift necessitated by the introduction of ICT resulted in the changes in the disposition of protagonists for social change and this reflected in roles played by corporate powers within our societies. What are the major roles of ICT in advancing corporate powers in our societies? Firstly, the central/national government has little or no regulatory control over ICT businesses across the globe, because it is mostly private sector driven. Secondly, the inter-connectivity of fundamental social processes of communication, information and association to ICT services empowers information communication and technology (ICT) business operators. Thirdly, pioneers of ICT business capitalized on the paucity of materials given the fact Information communication technology is in an embryonic stage thus outwitting the public sector and seeing it essentially as a private sector initiative. As a result the role of the public sector has been completely eroded. The normal checks and balances which is the prerogative of the government that is absent in the ICT space between public and private actors created a leeway and this shaped the new social information process in an evolving society.

The emergence of ICTs created an enabling environment for conducting business with ease with the outside world and at a cheaper rate as a result of the inter-connectivity between communities at a global level. It created a platform to connect with the outside world with access to international markets and various kinds of economic benefits such as banking, employment, commerce etc. Communities' earlier cut-off due to distance are now relieved as a result of ICT which has made the world to become a global village by removing the distance barrier. Such official connections involve a fitting set of new community at the intermediate level to be developed for the moral good of the public. The reason for this is not only to guarantee equal access within the community but to ensure that, the emerging power play in the new dispensation with the outside bodies is not at the detriment of the community. This factor should be consciously borne in mind at the inception of any

project before the community begins to utilize ICTs rather than a later date with the hope that things will take shape as utilization of the facilities commence. In the last two decades, ICT has made landmark achievement in the social and economic life of the people, but, this impact is yet to be fully felt in developing countries especially in the area of ICT and ICT4D nations despite its dynamism.

2.6 Hindrances to the adoption of ICT in developing countries

There have been some concerted efforts by developing countries to adopt the use of ICT. Ezeliora [18] listed "computer literacy, inadequate infrastructures, uncertainty, lack and inconsistency of state policy" as some of the problems affecting the effective use of IT. Further works in consonance with the above were carried out to buttress the point raised. UNESCO according to Osokoya [19] reported that schools in developing countries in 1992 registered only 39% girls and 50% boys while in Nigeria UNICEF [20] cited by Osokoya [19] reported that there was a reduction in the general literacy level from 57% in 1990 to 49% in 2001 while that of women reduced from 44% to 41% during the same period. According to current statistics released by the federal ministry of education in Nigeria in 2018, the national literacy level stands at 65.1%; female 59.3% while male stands at 70.9% [21] The problem of illiteracy needs to be tackled in order to break through in the application of ICT in accelerating development without any hindrance. For ICT to be successfully adopted in Nigeria or any developing country, there has to be the full backing of the government in terms of entrenching IT policies. In 2004, agencies of the federal government of Nigeria under the auspices of the federal ministry of education introduced diverse ICT programs namely; library automation project and the Nigerian universities management information (NUMIS) among others but to mention a few.

Anyaogu [12] stated that the availability of ICT resources in developing countries is dependent on the level of effectiveness of government agencies. Nigeria's 90th position according to world IT ranking (The Punch 2006) indicate a level of progress as regards computer integration, while Global information technology report of 2016 ranked the network readiness of Nigeria as 3.2 occupying 119th position among the countries of the world.

According to Abimbade et al. [4] computer education has already been included in the national policy on education, but the detailed curriculum for the primary and pre-primary levels has been prepared but largely inadequate. At the secondary school level, the curriculum recommended has not been fully implemented in many schools due to various obstacles, such as lack of computer facilities, incessant power failure, security requirements, conducive environment and inadequate trained and qualified computer teachers.

Infrastructure is another major problem that needs to be addressed in developing countries so that ICT can easily be used. A recent study on ICT barriers in developing nations revealed that an aggregate of forty-three ICT barriers are common in developing countries [22] and these barriers are classified broadly as economic and socio-cultural; infrastructural, political and leadership, legal and regulatory, educational and skills, technical, security and safety. Other critical barriers identified are lack of internet exchange points (IXPs), invisible hands and micromanaging. In many of the developing countries, the power supply is poor and facilities for internet connectivity are yet to be fully installed. Adomi [23] revealed that Nigeria is at the embryonic stage of connectivity mainly as a result of basic problems with infrastructure; epileptic supply of electricity and the overbearing cost of the internet through a service provider. ICT depends on efficient communication systems and these are lacking. For example in Africa, South Africa accounts for over ninety % of the internet link of the whole African region [24].

Another problem that developing nations need to address is the provision of IT professionals to implement ICT projects. According to Ogunseye [25], the professionals in Nigeria need to be trained to put in place infrastructure to meet the varying needs at the local, national and international levels. In a research carried out by Oladimeji and Folayan [26] on the practicability of teaching and evaluating STM with ICT in Nigeria, the result showed that eighty percent of the samples (Teachers and students) used in the research were willing to be trained in the use of ICT.

3. Suggested roles of government, private sector and educational institutions

There is a need for Nigeria to wake up from her "deep slumber' to meet up with the "information revolution." The adoption of ICT in developing countries such as Nigeria is highly imperative in order to kick start our socio-economic development.

Nigeria's government must ensure that illiteracy is eradicated to meet up with the vision 2015 which is less than a decade from now through the full implementation of Universal Basic Education (UBE) program. There should be proper monitoring and regular evaluation of this Program web and other IT programs to ensure maximum success.

More funds should be released for the building of infrastructure and supply of facilities to equip secondary schools for the proper take-off of the computer education at the post-primary level. Also at the tertiary level, each postgraduate student should be provided with one laptop, similar to a Program on "one laptop per child" in which two junior secondary schools situated in Abuja, were beneficiaries in March 2007 (NTA Nationwide News, 24th Jan, 2008). The government should endeavor to provide stable power supply to nooks and cranny of the nation for effective and efficient performance of ICT gadgets, while training in the use of computer should be accorded its rightful position in our education system, due to its relevance in the development of the system. The training of IT professionals to implement ICT projects should be taken as a priority by the government. IT professionals are needed to make ICT relevant to local and national information and information technology needs. The government should seek the collaboration of private sectors and the assistance of international donors to donate ICT facilities and also reduce the import duties charged on ICT facilities. The education sector and educational institutions should adopt measures for capacity building of the populace to be able to use ICT and also develop ICT culture. ICT should be adopted in the extra-mural to reach more learners through distance education. Mobile learning, (M-learning) could also be introduced and adopted mainly for better outreach and an improvement in the learning experiences of the students through sandwich and external degree programs, a method already in use and with a high success rate in Saudi Arabia. Programmed software relevant to local needs should be developed and packaged for use of students from pre-primary to the post-graduate level of our education system.

4. Conclusion

The place of education as a basic tool for social transformation and modernization cannot be underestimated. A society's level of development is determined by the quality of its education, therefore, for a nation to be on the same pedestal with others it must pay serious attention to the education of its citizenry. People need to be literate in order to take full advantage of the benefits of ICT. It is the backbone

of national development and the engine of, and a catalyst for development. ICT is a powerful tool for social transformation with the potential to empower people to affect peoples' lives positively for the purpose of effecting to social change. In other to avoid the risk of being marginalized from the rest of the world, the onus rest on government of developing countries to ensure the growth of ICT so that they can be in the mainstream of information flow. ICT and information are now regarded as major factors in the socio-economic development of every nation. However, for ICT to be a powerful tool to promote social causes, ICT application needs to be packaged to meet the needs of the people and this must be backed up with programs of training and system development for IT professionals who can adopt ICT to suit local needs. The adoption of ICT in a developing country such as Nigeria is an enormous and capital-intensive task that needs the Nigerian government to collaborate with the private sector, the educational sector and assistance of international donor bodies/agencies.

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Conflict of interest

There is no conflict of interest whatsoever as regards this work.

Abbreviations

CCRHS	Center for Communications and Reproductive Health Service
EFA	Education for All
GIWG	Gender and Information Working Group
NOUN	National Open University of Nigeria
NUMIS	Nigerian Universities Management Information
ODL	Open Distance Learning
OLPC	One Laptop per Child
VIHEAP	Virtual Institute for Higher Education in Africa

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