

The Roles of ICT in Information Processing and National Development in Nigeria.

A.E.A. Kareem, M.Sc.^{1*}, O.O. Olaewe, Ph.D.², and O.A. Odeniyi, M.Sc.¹

¹Department of Computer Science, Osun State College of Technology, Esa-Oke, Nigeria

²Department of Science, Technology, and Mathematics Education, Osun State University, Ipetu-Ijesa, Nigeria

*E-mail: debo_kareem@yahoo.com

ABSTRACT

The GSM and Computers as agencies of ICT form the backbone of modern day telecommunications in Nigeria, and the entire world at large. GSM, computers, and other agencies of ICT are highly sophisticated, revolutionized, and reliable gadgets, which have come into being as a result of development in electronic world. Current technology has reduced the delay in information, which can now be processed with dispatch. Of remarkable note is the capacity of the GSM network to be used for data computing. The National Policy on Information Technology's vision was to make Nigeria an information technology-capable country in Africa and a key player in the information society by the year 2005. This paper examines the roles of ICT and related agencies in the overall development of tertiary institutions and Nigeria at large, using Osun State College of Education, Ilesa, as a case study.

(Keywords: ICT, information communication technology, GSM, global system for mobile telecommunications, computers, national development, government policy)

INTRODUCTION

Due to the advancement in communications technology, the entire world has been turned into a global village. The emergence of Information Communication and Technology (ICT) has changed the mental horizon of the human race and started a kind of revolution that has been witnessed throughout the global society especially in Nigeria.

Of remarkable note is the capacity of global system for mobile telecommunication (GSM) network to be used for data computing. Because it uses radio frequencies, GSM is a wireless

platform in contrast to those requiring connection of one's laptop modern to a telephone line in order to use the land-based telephone network. This means that users of GSM can be fully mobile and utilize wireless data computing anywhere without worrying about adapters, telephone jacks, and cables.

The Nigerian National Policy on Information Technology's vision was implemented to make Nigeria an information technology capable country in Africa and a key player in the information society by the year 2005, Using Information Technology (IT) as the engine for sustainable development and global competitive, some collaborative efforts have been made by the government at all levels and other stakeholders to make Nigeria (IT) compliant. Among these are the formation of various professional associations and group whose objectives, among others, are to promote computer literate citizens in the country before year 2015 (e.g. Nigeria Computer Society (NCS), Computer Professional (Registration Council) of Nigeria (CPN) and Computer for All Nigeria Initiatives (CANI) among others). The aims of forming these computer related associations is to enhance the development of computer knowledge for the purpose of processing information, research development, and overall national cohesion.

The advent of increasingly powerful ICT offers the potential to revolutionize national and global economies and societies at large, but brings with it a series of hard questions that call into questioning the structure of traditional, national, and international legal regimes. The GSM digital wireless network that is used to transmit audio communication in cellular phones may also be used to transmit data at rates that are limited to 9600bits.

The wireless application protocol (WAP) is a specification for a communication protocol used to standardize the way wireless devices such as cellular, telephones and radio transceiver can be used for Internet access including e-mail and the World Wide Web (WWW). In addition, WAP technology allows access to databases on Internet services (e.g. pharmaceutical information laboratory).

GSM allows users to utilize one phone and one number in many countries throughout the world. It is a digital technology and therefore the call quality is of a very high standard. Calls are always clear and the network is very secure. It is a network which generally covers a fairly broad geographic area, and which offers customized travel financial reference and commercials information to smart phone subscribers.

A computer is a digital device that processes information at very high speed. The modern world of high technology could not have come about except for the development of computer. Different types of computers find use throughout society in the storage and transaction to private household accounts. Computers have opened up a new era in manufacturing as well, through the techniques of automation and through the enhancement of modern communication systems.

In the year 2000, scientists discovered a way to transfer information on an atomic level without relying on traditional wires or circuits. This effect, dubbed the "quantum mirage", describes how an atom of matter placed in an elliptical shaped structure on a solid surface reflects itself at other part within the ellipse thereby relaying information. Researchers are also trying to speed up circuit functions through the use of super conductivity.

According to Microsoft (2003), the internet is now a global network connecting millions of computers. As of 1999, the Internet has more than 200 million users worldwide. The number since that time has continued to grow rapidly on a daily basis. More than 100 countries are linked into changes of data, news, and opinions thus encouraging knowledge, experiences, and dexterities globally. It has facilitated a knowledge explosion worldwide.

Electronics networks constitute the infrastructure which provides scientist with new means of communication that give them access to data

information and software in cyberspace, allows them to share and control remote instruments, and that link distant learners to virtual classrooms and campuses. Researchers have access to various types of networks including campus and national and international research networks, which are increasingly connected.

ICT stands for Information and Communication Technology. Many ICT application services and e-mail were originally based on narrow band technologies. Broadband technologies were only needed for video applications. Researchers have used ICT-based communications on the Internet mostly as a natural extension of other communication tools. Apart from greatly enhancing the quality and speed of communication among researcher, ICT use has also had various effects on the organization of research work. Collaborative patterns have changed research work on a fundamental level. Research has widened in scope as more researchers are able to participate and the hierarchies have sometimes been affected.

A more significant change in the organization of research has been the increase in reliable collaboration, particularly at international level, The personal computer and Internet has reduced the need for co-workers to be at a single location. Consequently, a new form of research work has emerged, the "extended research group". ICT contributes directly to teaching-learning and provides a support functions to researchers by enabling access to digital libraries, archives, database, and other information services.

STATEMENT OF THE PROBLEM

Nigeria, with an estimated population of 140 million (2006 National Census official figure), is a large country in every sense of consideration. With that intimidating population, Nigeria inarguably is regarded as the "Giant of Africa". The country alone accounts for 54 percent of the population in the West-African sub-region and about 25 percent of the population in Africa in total. Nigeria alone is greater than the population of fifteen countries that make up West Africa. In order to help the country execute her dominating leadership roles on the continent and in order to harness her human and material resources for strategic development, appropriate consideration must be given to the development of her

information and communication technology to the required world standards.

RESEARCH QUESTIONS

Based on the above stated problems, the following research questions will be addressed.

1. What are the relevant GSM, computer, and other ICT channels with respect to the needs of Nigeria as a whole?
2. Of what uses are the ICT agencies to the systematic development of our educational system?

SIGNIFICANCE OF THE STUDY

This study has multifarious and multi-dimensional purposes for the country's fellow researchers, academic communities, and computer-analysts at large, among others:

1. Computer-researchers and other scientists will find the literature review and other information contained in this study as valuable sources of empirical data for further research with a view to building the frontier of knowledge.
2. School administrators, educational policy-makers, psychometricians, educational practitioners, educational researchers, computer experts, etc. will benefit tremendously from the information contained in this study by making use of it in evolving computer culture in our students at various levels of educational endeavours.

RESEARCH DESIGN

The research design adopted for this study is "ex-post-facto" type. In addition, a survey design was used. The survey design, according to Nworgu (1991), is one in which a group of people or item is studied by collecting and analyzing data from only a few people or item considered to be representative of the entire group. Furthermore, an ex-post facto research design, according to Kerlinger (1973), is a systematic empirical inquiry in which the researcher does not have direct control of independent variables.

POPULATION AND SAMPLE

The target population for this study was comprised of all academic and non-academic staff of tertiary institutions in Osun State who either owned a computer or a handset. Because of time and cost, only 200 members of academic, non-academic, and student population of Osun State College of Education, Ilesa have been selected as a sample population on the basis of possessing either a computer, handset, or both.

INSTRUMENTATION

Two research instruments were used to collect data for this study, they are:

- (i) Computer usage questionnaire and
- (ii) Handset usage questionnaire

RELIABILITY OF THE INSTRUMENT

The two instruments constructed were each trial-tested on another population outside the study area. Test-retest methods of reliability were used. Coefficient correlation of 0.80 and 0.84 were obtained, respectively. An indication that the two instruments have strong reliability indexes.

DATA COLLECTION PROCEDURE

The research instruments were personally administered by the researchers. Each of the instruments was personally distributed to both academic and non-academic staff in all the five schools within the college. Those who owned either handsets or set of computers are allowed to respond to the questionnaires. They filled it in and returned the same to the researchers almost immediately.

STATISTICAL ANALYSIS PROCEDURE

The data collected were subjected to statistical analysis using a measure of central tendency such as frequency counts and percentages for the biodata information in the instruments. The main statistical method used to answer the research questions is the adjusted t-test statistical analysis.

Table 1: Profiles of the Respondents on School Basis.

Schools	Respondents	%
Education	55	27.5
Languages	25	12.5
Sciences	58	29.0
Voc. And Tech.	18	9.0
Arts & Social Sci.	44	22.0
Total	200	100

Sources: Fieldwork Records 2007

Table 2: Distribution of the Respondents by their Highest Qualifications.

Highest Qualification	Number	Percentage (%)
Ph.D	08	04.0
M.Sc/M.Ed	20	10.0
B.Sc.ED/B.Ed	40	20.0
HND	24	12.0
NCE	18	09.0
OND	30	15.0
SSCE	60	30.0
TOTAL	200	100.0

Sources: Fieldwork Records 2007

Table 3: Profiles of the Respondents by Gender.

Gender	Number	Percentage (%)
Male	82	41.0
Female	118	59.0
TOTAL	200	100.0

Sources: Fieldwork Records 2007

Table 5: Research Question One: What is the relevance of the GSM, computer, and other ICT channels to the needs of Nigeria as a country?

S/N		Agree	Disagree
1	Computer is valuable, in radio message transmission	176 (88)%	24 (12)%
2	Computer is faster, accurate, and facilities editing unlike other machines	182 (91)	18 (09)
3	Innovation of handsets has reduced the rate of crimes in the country	188 (94)	12 (06)
4	Larger data compilation and computation are better handled by computer	174 (87)	26 (13)
5	Obedience to instruction in calculation and manipulation and other operations makes computers indispensable	184 (92)	16 (08)
6	Sexual promiscuity among the students are promoted by the use of handsets	74 (37)	126 (63)
7	Automation of computers in communication, data processing, cable links and networking is an asset	190 (95)	10 (05)
8	Many important decisions are rapidly made with the use of handsets mobile phones	184 (92)	16 (08)
9	The use of handsets facilities exam fraud	164 (82)	36 (18)
10	Possession of handsets diverts attention to triviality	70 (35)	130 (65)

Table 4: Distribution of the Respondents on the Basis of Accessibility to a Computer.

Accessibility	Number	Percentage (%)
YES	86	43.0
NO	114	57.0
TOTAL	200	100.0

Sources: Fieldwork Records 2007

DISCUSSION

As could be inferred from Table 1, 55 (27.5%) of the respondents were selected from the school of Education, 25 (12.5%) from the school of Languages, 58 (19%) from school of Science, 18 (09%) from school of Vocational and Technical Education, and 44 (22%) of the respondents came from school of Arts and Social Sciences.

As indicated in Table 2, 08 (04%) of the respondents have a Ph.D. as their highest qualification, 20 (10%) have a Master Degree, 40 (20%) have their Bachelor Degree, 24 (12%) obtained Higher National Diploma, 18 (09%) obtained Nigeria Certificate in Education, 30 (15%) obtained Ordinary National Diploma Certificate, whereas 60 (30%) of the respondents obtained Senior Secondary Certificate Examination.

Table 6: Research Question Two: Of what use is are (ICT) agencies to the systematic development to our educational system?

S/N		Agree	Disagree
1	Barriers in emergency communications are reduced	144 (72)%	56 (28)%
2	Important messages are sent and recovered without delay	150 (75)	50 (25)
3	Analogue computers kills creativity and manual dexterity of the learners	58 (29)	142 (71)
4	Digital Computer encourages monotony of ideas and reasons	52 (26)	148 (74)
5	Handsets serve as memory reserve in case of important appointments	146 (73)	54 (27)
6	Learning with dispatch and in-depth analysis can be ascribed to computers usage	164 (82)	36 (18)
7	Virtual classrooms created by computer networking has encouraged broad researchers	180 (90)	20 (10)
8	On-line message transmission promotes business and international politics	170 (85)	30 (15)
9	Cross-cultural exchange of ideas, knowledge, findings, and skills are made possible by the use of mobile phones	184 (92)	16 (08)
10	Computer networking has reduced the monopoly of knowledge, skills, status and academic hegemony	188 (94)	12 (06)

As could be deduced from Table 3, 82 (41%) of the respondents were male whereas 118 (59%) of them were female. Evidence from Table 4 indicates that 86 (43%) of the respondents have access for the use and learning of computers but 114 (57%) of them do not own a computer nor have access to their use. Evidence here indicates that a sizeable body of the respondents despite their being workers in a tertiary institution, still don't have access to computer.

As could be deduced from Table 5, 176 (88%) of the respondents agreed that the computer is valuable in radio message transmission while 24 (12%) disagreed. With respect to the computer being faster, more accurate, and facilities editing unlike other automation, 182 (91%) of the respondents agreed to this while 18 (09%) disagreed. A total of 174 (87%) were of the view that larger compilation and computation are better handle by computers whereas 26(13%) disagreed to this view.

A total of 184 (92%) of the researcher subjects agreed that obedience to instruction, calculation, and manipulation, and other operations makes a computer indispensable although 16 (08%) disagreed to this opinion. Further, 74 (37%) of the respondents agreed to the view that the use of handsets promotes sexual promiscuity whereas 126 (63%) of them disagreed totally. A total of 190 (95%) of the respondents agreed that automation of computers in communication and data processing makes it an asset although 10(05%) held a contrary view. One hundred sixty-four (82%) agreed that use of handsets facilitates

examination fraud while 36 (18%) disagreed to this view.

As could be deduced from Table 6, 144 (72%) of the respondents agreed that any form of barrier in communication is reduced with the emergence of computers, while 56(28%) disagreed with this viewpoint. One hundred and fifty of the respondents (150) (75%) agreed that important messages are sent and received without any delay with the use of handset or GSM, whereas 50 (25%) disagreed with this viewpoint in that order. A total of 142 (71%) of them disagreed with a view that Analogue computers kills creativity, manual dexterity and ingenuity of the learners, although 58 (29%) disagreed with this view in that order.

One hundred and forty-eight of the respondents (74%) disagreed that the emergence of computers encourages monotony of ideas and reasons whereas 52 (26%) of them agreed with this view. This disagreement is line with the view of Fakolujo (2005) where he stressed that, electronic networks constitute the infrastructure which provides scientists with new means of communication that give them access to data, information, and software in cyberspace, allows them to share and control remote instruments, and that links distant learners to virtual classrooms and campuses.

One hundred and forty-six of the respondents (73%) agreed that handsets or GSM serves as a memory reservoir in case of important appointments although 54 (27%) disagreed with

this view. A total of 164 (82%) of the respondents were convinced that learning with dispatch and in-depth analysis can be ascribed to the use of computers, whereas 36 (18%) of them have the contrary view to this point. Further, 180 (90%) of the respondents have agreed totally that virtual classrooms created by the use of computers networking has encouraged broad researches and a sort of mental liberation of the human race but only 20 (10%) of them held contrary views to this. Affirmation to this point is in line with the view expressed by Hiemstra (1986), when he suggested that researchers using qualitative methodologies approach data collection and analysis inductively. Interviews and /or participant observations can be used to inductively build theory. Such a theory is grounded in the subject's observed behaviour and words rather than in a deductive testing of an a prior hypotheses or theory.

Furthermore, Bamiro, et al. (2005) stressed that Internet facilities have found extensive uses in library services, commercial information services, education/research, and business, generally. Internet facilities, are used in libraries for inter-library information requesting (e-mail), document delivery (by the file attachment facility), current awareness services (through bulleting board and lists), and database searching (online of remote database).

In a similar submission, Cohen (1995), argued that Qualitative data analysis involves various activities used to organize, interpret, synthesize, conceptualize, and report information. The researcher examines data for recurring themes, word patterns, study force, relationship among categories, evolving themes, and even hypothesis testing opportunities. All these enduring activities are made possible with the emergence and frequent uses of computer.

One hundred and seventy respondents (85%) agreed convincingly that on-line message transmission promotes business and international politics. A total of 184 (92%) of the respondents affirmed that cross-cultural exchange of ideas, knowledge, findings, and skills are promoted through the uses of computers and allied agencies. And, 188 (94%) of the respondents have agreed that computers networking has reduced monopoly of knowledge skills, status and academic heroisms whereas only 12 (06%) held the contrary view. Many of the privileges of information nowadays, was formerly exclusive

preserved to the rich and highly placed technocrats in and out of governments. are now available to the man-in-the-street due to the emergence of computer networking. Question 10 corroborates these viewpoints.

Fakolujo (2005) stressed that new technology can also change part of the basis for the existing status distinctions. ICT can, for example, enhance the status of younger colleagues, who are more familiar with the latest technology. It may also provide peripheral researchers with wider access to crucial resources – such as computing facilities software, or database – which have traditionally been unequally distributed. Furthermore, Fakolujo (2005) stated, “The enhanced use of ICT in teaching may also help to improve academic productivity, thus enabling researchers to spend more time on research”. Researchers may also need better educational training to use ICT efficiently for research work.

CONCLUSION

From the available information and empirical data, it has been concluded that the advantages of computers and handsets outweighs their disadvantages. From the available data collected, sizeable numbers of people do not have access to computers, learning, and usage. It implies that 57% of people, involved with tertiary educational institutions, have no access to computers and by extension; they are not in ICT compliance. This figure is rather too high for any meaningful development or technological development.

RECOMMENDATION

Based on the findings and conclusion, the following recommendations are made: genuine efforts should be made by all tiers of governments (local, state, federal), to equip all literate citizens in the country to be computer literate and ICT-compliant.

All public institutions in the country should be compelled to teach computer courses at all levels of institutions of learning.

Governments at all levels and other stakeholders should put their resources in providing adequate and sufficient infrastructural facilities to all nooks and crannies of the country (e.g. electricity supply).

Computer literacy should be made a pre-condition for employment opportunities into local, state, and federal organizations.

At the elementary stage of our educational system, our educational policy-makers should ensure that necessary incentives are given to teachers who are teaching science, technology, and mathematics as a springboard for computer learning.

At the secondary school level, science technology and mathematics should be made compulsory courses to all students irrespective of their academic grouping and predisposition. Passing the three subjects should be made a pre-condition for promotion into senior classes.

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ABOUT THE AUTHORS

A.E.A Kareem received his B.Tech (Hons) and M.Sc. in Computer Science from the Federal

University of Technology, Akure, Nigeria and the University of Ibadan, Nigeria, respectively. He is a chartered IT specialist. He is a member of Nigeria Computer Society (NCS) and Computer Professionals Registration Council of Nigeria (CPN). He is an Associate Member of Nigerian Institute of Management (NIM). Currently, he is the Acting Head of Computer Science Department of Osun State College of Technology, Esa-Oke, Nigeria. His research areas are centered on Computer Communication and Networking and Management of ICT Infrastructures.

O.O Olaewe, Ph.D. is a research fellow who graduated from the International Centre for Educational Evaluation (ICEE), University of Ibadan, Nigeria. He is a Lecturer in the Department of Science, Technology, And Mathematics Education of the Osun State University, Ipetu-Ijesa Campus, Nigeria. His areas of interest include Mathematics Education, Program Evaluation, and "Attitude" as a determinants of behavioral predisposition and academic achievement.

O.A. Odeniyi holds a B.Tech (Hons) in Computer Science and Engineering and an M.Sc. in Computer Science from the Ladoke Akintola University of Technology, Ogbomoso, Nigeria and the University of Ibadan, Nigeria, respectively. He is a member of Computer Professionals Registration Council of Nigeria (CPN). Currently, he is a Lecturer in the Department of Computer Science, Osun State College of Technology, Esa-Oke, Nigeria. His research areas include Computer Communication and Networking.

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