

Enhancing Workers' Productivity and Efficiency through ICT.

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ABSTRACT

The strategic position of computers and its allied agencies cannot be overemphasized. The former days of analogue and manual computation and information dissemination have gone. Current technology has reduced the delay of information which can now be processed almost immediately with dispatch. It allows more than one person to interact with a computer at a time. Improved communication due to Information and Communication Technology (ICT) has contributed to an increase in the size of professional networks. Millions of people are benefiting from computers worldwide either as engineers, internet operators, computer analysts, teachers, retail sellers, etc. This paper examines the impact of computer training on the productivity of tertiary institution workers in Nigeria. In carrying out this research work, two instruments were used to collect data, with 200 categories of workers in a higher institution of learning in Nigeria.

(Keywords: computers, information and communication technology, ICT, global system of mobile telecommunication, GSM, internet, website)

INTRODUCTION

Due to the advancement in technology the whole world has been turned into a global village. The emergence of Information and Communication and Technology (ICT) has changed the mental horizon of the human race, a kind of revolution that has never been witnessed in the human history, especially in Nigeria.

The Global System of Mobile (GSM) telecommunication and computers form the backbone of modern day telecommunication in Nigeria now and the entire world at large. Both

computers and GSM are highly sophisticated, revolutionized and reliable gadgets, which have come into being as a result of development in the electronic world. Computers have become very important in creation of database for larger volumes of information especially in large office and government quarters. Management personnel require a wide range of information for effective coordination and decision-making. The use of expert systems was introduced into the Ministry of Information during the early Twenty-First Century to provide management and useful information in the various zonal offices.

RELEVANCE OF GSM TO INFORMATION PROCESSING

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 9600 bits. However, for access to the Internet, a mobile phone needs a connection to a computing device (i.e., either a portable or stationary computer or a personal digital assistant with an appropriate interface connection).

GSM allows users to use one phone and one number in many countries throughout the world. It is a digital technology and therefore the call quality is of very high standard. Calls are always clear and the network is very secure through the Subscriber's Identity Module (SIM) card.

THE CONCEPT OF ICT

Many ICT application services and e-mail were originally based on narrow band technologies and broadband technologies were only needed for video applications. Researchers have used ICT based communication or the Internet mostly as a

natural extension of other communication tools. Apart from greatly enhancing the quality, quantity and speed of communication among researchers, ICT use has also had various effects on the organization of research work. Collaborative partners have changed research work scope. The process has been widened as more researchers are able to participate and the hierarchies have been sometimes been affected.

Improved communications due to ICT may contribute to an increase in the size of professional networks. For example among oceanographers, intensive e-mail users report larger professional networks. In Biology, Chemistry, Mathematics, and Physics, in association with the use of ICT in experimental particle physics, the Internet has facilitated experiments in which a large number of people collaborate effectively through distributed computing. A more significant change in the organization of research has been seen in the increase in reliable collaboration particularly at the International level. Computer networks have 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". This is typically a large, unified, cohesive, cooperative research group that is geographically dispersed, yet they are coordinated as if it were at one location and under the guidance of a single director. It provides access to colleagues and to equipment software and database that are traditionally part of laboratory organization without regard to geography. These collaborations rely heavily on ICT coordinating their works.

Rapid advances in ICT have made it possible to handle digital data and information in large volumes at ever increasing speeds and have resulted in sharp reductions in the cost of storing, filtering, processing, compressing, and retrieving researchers' information by supply them with increasingly powerful tools at decreasing cost, and enabling new ways of working. Researchers have frequently been the first to use ICT in a new comprehensive ways as in the case of the internet.

INTERNET AS A CONCEPT

The internet is simply a computer-based global information system composed of inter-connected networks of computers. Through the internet, information has been brought to the doorstep of

both the rich and the poor. It is cheap to use and deploy within any organization (Microsoft 2003). Such networking of computers by communication media and equipment is referred to as the internet.

CONCEPT OF COMPUTER

Computers can be defined as devices that accept and process data to give information. The modern world of high technology could not have come about except for the development of modern computer technology. Another ongoing trend is the increase in computer networking which now employs the worldwide data communications system of satellite and cable links to connect computer globally.

In the year 2000, scientists discovered a way of transferring information on an atomic level without relying on traditional wires or circuits. This effect dubbed "quantum mirage" describes how anatomy of matter placed in an elliptical shaped structure on a solid surface reflects itself at other point within the ellipse, thereby relaying information. This was the genesis of mobile phone worldwide.

According to Microsoft (2003), global networks now connect millions of computers. As of the turn of the century, the Internet had more than 200 million users worldwide. More than 100 countries are linked into exchange of data, news, and opinions thus encouraging knowledge, experience, and intellectual dexterities, globally. It has facilitated a worldwide knowledge explosion and has strengthened the frontiers of research, globally.

STATEMENT OF THE PROBLEM

Nigeria, with an estimated population of about 140 million, (2006 national census official figure) is a large country with all of the associated ramifications. With that intimidating population, Nigeria is regarded as the "Giant of Africa". The country alone accounts for about 54% of the population in the West Africa sub-region and about 25% of total population in Africa. It implies that Nigeria alone is larger than the rest of the fifteen countries that make up West Africa. In order to help the country live up to her dominating role in the rest of African Continent, to harness human and material resources for strategic

development, and to compare favorably with other world powers, economically, politically, technologically, and scientifically, adequate investment should be identified to develop her information and communication technology to the required world standard.

RESEARCH QUESTIONS

Based on the above stated problems, the following research questions will address the problems raised:

1. Of what benefits are the GSM, computer, and ICT to the teaming population (students, academics, civil servants, etc.) in Nigeria?
2. What is the relevance of the ICT, GSM, and computers to the skills and knowledge development, research process, military information, computer literacy, knowledge, and manpower development of the country?

SIGNIFICANCE OF THE STUDY

This study, being an empirical analysis, has multifarious purposes for the country and world at large:

- i. Computer researchers and other scientists will find the literature review and other valuable information contained in this study as sources of empirical data for further research.
- ii. Policy-makers, computer researchers, educational practitioners, school administrators, educational researchers, computer experts, etc. will benefit tremendously from the information contained in this study by making use of it in evolving computer skills and knowledge in their respective areas of operation.
- iii. Researchers of all disciplines will make judicious use of this study in expanding the scope of their researches especially those having to do with electronic mails, internet, computer, ICT, etc. and spiral-classes all over the world.

POPULATION AND SAMPLE

The target population for this study comprised all academic and non-academic staff of Osun State College of Education, Ilesa, Nigeria who either own a computer and/or a handset. Because of the time and the cost, only 200 members of the academic and non-academic staff were purposely selected as the sample for this study. Their selection was based on possession of either a handset or a computer, or both.

INSTRUMENTATION

Two research instruments which were used to collect data for the study, were:

- i. Computer Usage Questionnaire (CUQ)
- ii. Handset Usage Questionnaire (HUQ)

The computer usage questionnaire was divided into two sections: section A contains bio-data information of the respondent while section B contains item soliciting opinions and attitudes of the respondents on the use of computers and internet. A four point rating scale of strongly agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) were used.

The handset usage questionnaire was divided into two sections: section A solicits information about Bio-Data information of the research subjects section B solicits information about personal predisposition of the research subjects.

RELIABILITY OF THE INSTRUMENTS

The instruments after construction were trial-tested on another parallel population outside the study area using test-retest techniques. An interval of three weeks was allowed before the second administration. The pair of the scores obtained was correlated. Coefficient correlations (r) of 0.80 and 0.84 were obtained, indicating that they were reliable.

DATA COLLECTION PROCEDURE

The research instruments were personally administered on the research subjects by the researchers. They were collected almost immediately after subjects responded to the items.

STATISTICAL ANALYSIS PROCEDURE

The data collected were subjected to rigorous statistical analysis using the measure of central tendency (e.g. mean, mode and median frequency counts). The main statistical method used to answer the research questions was the adjusted t-test statistical analysis.

Table 1: Profiles of the Respondents.

Schools	Respondents	Percentage %
Education	55	27.5
Language	25	12.5
Arts & SOS	44	22.0
Sciences	58	29.0
Vocational and Technical	18	09.0
Total	200	100.0

Sources: fieldwork Record 2007

Table 2: Distribution of the respondents by their Highest Qualification.

Highest Qualification	Number	Percentage %
Ph.D.	08	04
M.Sc./M.Ed.	20	10
B.Ed./B.Sc.	40	20
HND/HNC	24	12
NCE	18	09
OND	30	15
SSCE	50	25
Total	200	100

Table 3: Research Question 2: Of what benefits are the GSM, Computer, and ICT to teaming population (students, academics, civil servants, researchers, etc.) in Nigeria?

S/N		Agree	Disagree
1.	Storage, retrieval and transmission of information	168 (84%)	32 (16%)
2.	Computers are more powerful and better than manual gadgets	156 (78%)	44 (22%)
3.	Virtual classroom created by the emergence of computer technology has encouraged broad researches	148(74%)	52 (26%)
4.	Global piracy and fraud were encouraged by computer	168(83%)	34 (17%)
5.	Learning with dispatched and in-depth analysis can be anchored to computer usage	170(85%)	30 (15%)
6.	Handsets serve as memory reservoir incase of important appointment	174(87%)	26 (13%)

DISCUSSION

As could be deduced from Table 1, 55 or (27.5%) of the respondents came from School of Education, 25 or (12.5%) from Languages, 44 (22%) came from the School of Art and Social sciences, 58 (29%) come from School of Sciences while 18 (09%) of the respondents came from School of Vocational and Technical Education respectively.

As could be observed from Table 2, 8 (04%) of the research subjects had a Ph.D. as their highest qualification, 20 (10%) hold Masters degrees, 40 (20%) obtained a Bachelor degree, 24 (12%) had Higher Diploma Certificate, 18 (09%) possessed a Nigeria Certificate in Education, 30 (15%) of the respondents obtained Ordinary National Certificate, while 50 (25%) were School Certificate holders.

As could be deduced from Table 3, 168 (84%) of the respondents hold the view that storage, retrieval and transmission of information are

made easier and faster by computer facilities whereas 32(16%) held the contrary view; 156 (78%) of the research subjects agreed that computers are more powerful and better than other analog and manual devices, but 44 (22%) disagreed. 148 (74%) of the respondents agreed that virtual classes, collaborative researches and international connections are made possible because of computer facilities although 52 (26%) held the opposite opinion. 170 (85%) of the research subjects agreed that learning with dispatch and in-depth analysis was made possible through computers whereas 30 (15%) disagreed with this opinion. 174 (87%) of the respondents held the opinion that handsets serve as a memory reservoir incase of important appointment but 26 (13%) disagreed with this view.

It could be deduced from these statements that respondents viewed the advantages of computer and its allied agencies as outweighing its shortcoming to the world generally.

Table 4: Research Question 3: What is the relevance of the ICT, GSM, and Computers to the skills and knowledge development, research process, military information, computer literacy, knowledge and manpower development of the country?

	Mean	Standard Deviation	μ	DF	Standard Deviation	T. calc	T. crit
GSM	63.1	22.41	200	198	18.98	2.15	2.273
Computer	64.2	18.29					

From Table 4, the calculated t-value is 2.15 while the critical value is 2.273. Since the calculated value is less than the critical value of 2.273 therefore we retain or confirm the research question.

It implies that Computers, GSM, ICT and other allied agencies are very relevant and contribute immensely to the national development and international understanding. The outcome of this study and the result of the test statistics employed to analyze the data collected has shown the indispensability of computers to humanity. It implies that in the midst of development and global advancement, Computers has crucial roles to play.

CONCLUSION

From the available information and the empirical data collected, it has been convincingly concluded that the views of surveyed subjects are that the advantages of computers outweighs its disadvantages. Also, that the workers in the tertiary institutions in Nigeria have a lot to gain in terms of skills and knowledge development when they are computer literate.

RECOMMENDATIONS

Based on the findings of this study, it is hereby recommended that; genuine and concerted efforts be made by all tiers of government (Local, State and Federal), and International stakeholders to equip all literate citizens in the

country so as to meet the standards of advanced countries and to be in line with 21st Century demands in the world of work.

As the Federal Government in Nigeria has decided to make all its civil servants computer literate on or by 2015, other tiers of government should emulate and pursuing this noble goal.

All academic programs including admission into higher institutions of learning, application into the world of work, registration into Universities Matriculation Examination (UME), processing of examination results, payment of school fees (where applicable), and payment of salaries and wages should be electronically implemented.

Appointments into State and Federal Civil Service and into tertiary institutions should be based on computer literacy. All the country's strategic points - Seaports, Airports, Banks, and Armories should all be computerized. In addition their operations including surveillance should be made computer and ICT compliance.

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