The Use of ICT and Communication Effectiveness among Secondary School Administrators

Eno Etudor-Eyo, Helen Anthony Ante & Ime Effiong Emah

ABSTRACT: *Humanity is currently in an electronic age which is characterized by bridging the gap between distance and time, giving way to information revolution built around information and communication. Therefore, this study obtained data from 396 secondary school administrators through the Administrators' Use of ICT Questionnaire (AUIQ) and Administrators' Communication Questionnaire (ACQ) to investigate how the use of ICT (Information and Communication Technology) predicts communication effectiveness among secondary school administrators in Akwa Ibom State, Nigeria. The findings were that the extent of administrators' use of ICT and the extent of administrators' effectiveness in communication are high; there is a significant positive relationship between administrators' use of ICT and administrators' effectiveness in communication; the effectiveness of secondary school administrators in communication is significantly predicted by the use of ICT. Based on the findings, conclusions were drawn and recommendations made that Government should make ICT tools available in all secondary schools for the administrators; workshops on the use of ICT should be organized from time to time by the Governments and NGOs (Non-Governmental Organizations) for school administrators who are not yet ICT literate; and skilled man-power should be employed to teach those administrators who are still illiterate in this regard by NGOs, the government, and individuals.*
KEY WORDS: *Use of ICT, communication effectiveness, secondary school administrators; and skilled man-power in Nigeria.*

Introduction

In recent times, the process of information gathering and communication has advanced greatly (Ola, 2004; and Ukwegbu, 2005). Never in human history has such a revolution been witnessed in which digital data has transformed the way, we communicate in our homes, offices, market places, hospitals, churches, sports arena, legal environments, and more importantly schools or educational concerns.

It is on this note that the government of Thailand had to put ICT (Information and Communication Technology) as top project on display such that the project was at the three-day state information and communication technology week to show the public, the progress that was being made in developing new electronic services (Jowssey, 2008).

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Several other nations of the world have placed so much importance on the use of ICT in their administrative affairs. For instance, e-filing has become the best solution in tax administration in Ghana (Boakye & Banini, 2007); and web services and e-services enable the Revenue Department to provide successful e-services to the public in England (Kennewell, Parkinson & Tanner, 2007). ICT has also shaped African schools and classrooms (Mbangwana, 2007); and ICT also had brought about organizational change in Italian manufacturing firms during 1995-2003 (Giuri, Torrisi & Zinovyeva, 2008).

ON THE ICT AND ITS IMPACT: THEORETICAL FRAMEWORKS

UNESCO (United Nations for Education, Scientific, and Cultural Organization) in 2002 defined information and communication technology (ICT) as the range of technologies that are applied in the process of collecting, storing, editing, retrieving, and transfer of information in various forms. ICT could, therefore, be understood as all those electronic devices that are used in broadcasting telecommunication and all other electronically mediated information gathering and dissemination processes. These include radio sets, television sets, audio tape players, video players, projectors, the software, and hardware which are used in the teaching and learning processes.

There seems to be a consensus in literature that the difference between administrators, teachers, and students of Nigerian school, and those of other world class schools, is the civilization in latter institutions and the exposition of their administrators, teachers, and students to world class ICT experiences (Okhiria, 2007).

The ICT impact in the area of communication is so strong that changes are already occurring in the examination bodies in the country. Today, the Joint Admissions and Matriculation Board and Nations Education Certificate Examinations results can be checked online; obtaining and filling of post University Matriculation Examination aptitude tests for university admissions is through online with the use of scratch cards. ICT materials offer fresh hope for quick release of results of evaluation of instructional outcomes for supervision of schools. Thus, the era of long-waited result is over with ICT presence (Bassey, Okodoko & Akpanumoh, 2009).

Writing on ICT as a facilitator and aid to teaching and learning, Otakhor argued that the introduction of ICT facilities in secondary schools could spur learning attractiveness and hence its effectiveness (cited by Etudor-Eyo, Etuk & Azewena, 2009). For instance, the automatic spelling and grammar function in the ICT system enables teachers and students to see their spelling errors and the options from which to choose. In addition, the use of educational application of software helps the students to work easily, makes their writing easier, and improves efficiency of teaching-learning process and helps them improve more professionally (Ibadin, 2008).

The World Bank (2007) report emphasized the pertinent role of the teacher in the effective utilization of this new global innovation and practice. It opines that it is not the presence of technology itself that stimulates significant changes inside a school. That without the involvement of the teacher and staff, most students may not take full advantage of all available potential on their own. Thus in Nigeria, new ICT related tools can make institutions and workers more productive, enhance skills and learning, improve governance at all levels, and make it easier for the poor to access services and make their voices heard (Abid, 2004).

Indeed, it has been established that power and influence flow to those who know more and have access to better information (Longe & Agabi, 1990). Meanwhile, M.O. Yusuf (2005) also maintained that modern organization's ability to achieve results and the decision making effectiveness of contemporary managers is no longer dependent on just the quality of the manager, but more importantly is the function of the quality of information and communication channels feeding and transmitting their actions.

In 2001, M. Telem conducted a study in school 4 in Hougang, North Zone of Singapore, in June of the same year; and found out that ICT helped in streamlining administrative processes in the area of communication. Previously, teachers used to refer to big log books to know which rooms were available for booking and who booked same and for how long, but with ICT, they could see the schedule for an entire month and know who booked them and which date the rooms may be vacant. In addition, ICT was found a very important tool for information dissemination as it helped communicate whatever information was available to the staff the moment they logged – in as they read, know, and acted. M. Telem (2001) then concluded that ICT was effective in eradication of distortion, duplication of information, thus enhancing effective communication.

Also, T.K. Obeng (2004) was of the opinion that the use of internet and intranet, besides reducing administrative cost also reduces administrative inconveniences because the same information on the internet can be sent to all departments without having to do it individually. Instead of sending notices of meeting, for instance, to lectures or those concerned, this can be done online. Communication both within and outside departments can be greatly enhanced by the use of internet, intranet, and extranet.

K.L. Nickels, M. McHugh and J. McHugh (2002), however, warned that electronic communication can never replace human communication for creating enthusiasm and *espirit de corps*. That efficiency and productivity can become so important to a firm that people are treated like robots. Computers are tools not a total replacement for workers. Computers should aid creativity by giving people more freedom and time.

J. Anamuah-Mensah (2009) observed that the use of computer-mediated communication is of great gain both at work places and business ventures. J. Anamuah-Mensah reported also that the use of computer applications is useful in accounting and finance, financial control, sales and marketing, and manufacturing. Also, T. Kalusopa (2005) conducted a study on the challenges of utilizing information communication technologies (ICT) for the small-scale

farmers in Zambia. To achieve the aim of the study, T. Kalusopa carried out in survey of information needs of small-scale farmers in two selected provinces, in order to establish and prioritize their information needs. The findings included weak human capital and technical infrastructure, lack of clear national information policy, and lack of a coordinated agricultural information support system for small-scale farmers anchored on ICTs. This pointed to the necessity of using ICTs in organizations for effective communication and on members of that organization, which schools are not left out.

The Ministry of Health in Ghana (2003) enumerated the significance of using ICTs in health sector to include improving access to health services, improving quality, improving efficiency in both management and technical through reliable information dissemination systems, improving collaboration by proving support to overall planning and sector assessment process, and improving funding by proving a broadcast facility for marketing the health sector. All these are evident of organizational administrative effectiveness via the use of ICTs.

P. Hook (2004) found that the use of ICTs enhanced the transformation of learning outcomes for the gifted and talented. With ICTs, teachers were able to teach, communicate, maintain good records, and evaluate these groups of children with high level of potentialities in them. The use of ICTs has dramatically increased the speed of communication in organizations (FMLINK, 2006). In line with this, Freedman reviewed that primary school curriculum and recognized the usefulness of ICT as essential to a modern concept of literacy and to effective communication which are within language, oracy, and literacy (as cited by FMLINK, 2006).

In 2009, E.U. Etudor-Eyo, G.K. Etuk and R.N. Azewena found that there is high level of utilization of ICT by school administrators in the Akwa Ibom State, Nigeria. Due to the high level of utilization of ICT by teachers in Italy, the minimum ratio of teacher/students is now 1/50, while the mean value is about 1/30. All technical, vocational secondary schools are connected to the internet, while the percentage of general secondary schools is about 90%, and in primary and lower secondary schools the percentage is 75% (Marcheggiano *et al.*, 2001). All reforms which are now affecting the school have brought about fundamental, wide-ranging changes in the administrative secretarial staff work.

In 2000, an increase in competition for scarce resources and the decrease in the public's trust in higher education practices were observed and government resulted in unprecedented demands for campuses to demonstrate their effectiveness and efficiency. Hence, R.H. Heck, L.K. Johnsrud and J.V. Rosser (2000) found that campuses responded with a host of institutional data ranging from retention and graduation rates to faculty workload studies to job and career placement records. One possible consideration, the performance of administrators well provided needed and appropriate information about the functioning of the institution. In Japan, it was reported that project management and implementation is enhanced through ICTs utilization (WSIS in Geneva 2003 and Tunis 2005). Hence, it is hoped that ICT could enhance high administrative effectiveness in secondary schools, especially in the area of communication.

Statement of the Problem and Research Questions

The task of maintaining effective machinery for a functional school system demands a great deal of administrative competencies from principals. They are expected to co-ordinate human and material resources for effective administration of the school. Presently, the world is experiencing change owing to advancement in information and communication technology (ICT) in various fields of human endeavors. The secondary school system, as social institution, cannot be shielded from being affected by the society within which they operate. The 21st century is the era of information and communication technology.

Computers and other ICT facilities have become major tools of communication and exchange of information among individuals, organizations, governments, corporate bodies among others. Innovative use of ICT in administrative process in most secondary schools in Akwa Ibom State, Nigeria seems not to be widespread. This is made difficult by several constraints which include: lack of funds to sustain the ICT infrastructure, inability of secondary school administrators to keep up with the pace of development in ICT, lack of staff with appropriate skills to manage ICT both at the strategic and operational levels, and absence of institutional policies and strategies to support and guide the use of ICT.

Administration of secondary schools is largely dominated by the use of manual operational methods. Secretaries and typists with outdated typewrites are common sights in most, if not all the principals' offices today. The increase in school population, complex goals/objectives, resources and programmes within the school, call for a better use of information system technologies.

Therefore, the problem of this study was to determine the influence of administrators' use of information and communication technology (ICT) on communication effectiveness in Akwa Ibom State secondary schools in Nigeria. In order to aid the investigation, two research question and two null hypotheses were formulated.

So, the research questions are as follows: (1) What is the extent of ICT use by school administrators?; and (2) What is the extent of school administrators' effectiveness in communication?

Hypotheses and Research Method

The hypotheses in this research are as follows: (1) The linear relationship between school administrators' use of ICT and effectiveness in communication is not significant; and (2) The contribution of the use of ICT to the prediction of administrators' effectiveness in communication is not significant.

This study used an ex-post facto research design. This design was considered appropriate because the researchers had no direct control of the variables of the study since they had already occurred. They were inherently not manipulable. Besides, the study was non-experimental and required a large sample size.

The population of the study consisted of all public secondary schools in Akwa Ibom State, Nigeria. There were 232 public schools with at least 3 administrators each (i.e. the principal and two vice principals) which gave a total of 696. This figure did not include those in private secondary schools and technical colleges.

The sample of the study consisted of 396 school administrators. This represented 57% of the population. A cluster sampling technique was used in selecting the sample. Each of the three senatorial districts of the state was taken as a cluster, and then from each of the cluster, local governments were randomly sampled before selecting the schools from each sampled Local Government Area. Fifty-seven (57) percent of the administrators were selected from each senatorial district. This ensured that districts with more administrators also provided a greater number in sample. The available administrators in each senatorial district were asked to pick from a bag of papers marked "Yes and No". The ones who picked "Yes" automatically became a subject for the study. From each sampled school, two teachers who had worked under each administrator were also randomly selected to assess each administrator.

Researcher-designed instruments known as Administrators' Use of ICT Questionnaire (AUIQ) and Administrators' Communication Questionnaire (ACQ) were used for data collection for the study. The instruments were placed on a 4 – points rating scale of: Strongly Agree (SA) – 4 points; Agree (A) – 3 points; Strongly Disagree (SA) – 2 points; and Disagree (D) – 1 point for positively worded items.

Reverse scoring order was used for the negative items. In order to ascertain the validity of the instruments, they were presented to three experts in research. The experts were acquainted with the objectives, research questions, and the null hypotheses. The research experts critically inspected every item and determined their suitability. This ensured the face validity of the instrument. The corrections were effected and the revised instruments were produced for the study.

To determine the reliability of the instruments, the AUIQ and ACQ were tested on 20 administrators and 20 teachers who were not involved in the main study. The instruments were coded and data obtained were analyzed using Cronbach alpha coefficient. Cronbach alpha enabled the assessment of internal consistency of the instruments which options were strongly agreed, agreed, disagreed, and strongly disagreed. The data analysis yielded the alpha coefficient of .757 and .773 for AUIQ and AEQ respectively. These were considered adequate that the instruments were reliable to achieve their objective.

The administration of the instruments to the respondents was done by the researchers and four trained research assistants. In each school, the researchers met with the principal for adequate introduction and permission to administer the instruments. Due explanation was made on each section and sufficient time was given for completion of each questionnaire, after which they were retrieved. Data obtained were analyzed using descriptive and inferential statistics.

RESULTS

Table 1 shows the mean scores of 14.97 for the extent of administrators' use of ICT (Information and Communication Technology) and 14.17 for the extent of administrators' effectiveness in communication. This means that the extent of administrators' use of ICT and the extent of school administrators' effectiveness in communication are high because the two mean values are respectively greater than the reference mean score of 12.5 which came by multiplying the average of the rating scale by the number of items (2.5x5). Results in table 1 answer research questions 1 and 2.

Table 1:
Descriptive Statistics for the Extent of Administrators' Use of ICT and Administrators' Effectiveness in Communication

Variable	Mean	SD	N
The use of ICT	14.9747	1.78584	396
Communication	14.1717	2.34403	396

Entries in table 2 show that the use of ICT by administrators has significant relationship with administrators' effectiveness in communication. Consequently, the result in table 2 shows that administrators' use of ICT has a significant linear relationship with administrators' effectiveness in communication. By this result in table 2, the hypothesis that there is no significant linear relationship between administrators' use of ICT and administrators' effectiveness in communication is rejected. This means that every unit of change in administrators' use of ICT results to a reciprocal change in administrators' effectiveness in communications.

Table 2:
Results of Pearson's Correlation between the Use of ICT and School Administrators' Effectiveness in Communication

	Variable	The Use of ICT	Communication
Pearson Correlation	The use of ICT	1.000	.584[*]
	Communication	.584	1.000
Sig. (1-tailed)	The use of ICT	.	.000
	Communication	.000	.
N	The use of ICT	396	396
	Communication	396	396

[*]Significant at .05 alpha level; df = 394; critical r = .113; and N = 396.

In table 3, the calculated F-value of 203.974 is greater than the critical F- value of 3.89 at .05 with 1 and 394. The result in table 3 means that administrators' effectiveness in communication is significantly predicted by administrators' use of ICT.

Table 3:
Results of Analysis of Variance of the Stepwise Prediction of School Administrators' Effectiveness in Communication with Use of ICT

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	429.710	1	429.710	203.974[*]	.000
	Residual	830.037	394	2.107		
	Total	1259.747	395			

a. Predictors: (Constant), the Use of ICT.
b. Dependent Variable: Communication.
[*]Significant at .05 alpha level; df = $F_{1,394}$; critical F = 3.89; and N = 396.

Table 4 shows that the use of ICT accounts for or explains 34% (R^2 =.341) of the variance in administrators' effectiveness in communication scores.

Table 4:
Result of R and R^2 in the Stepwise Prediction of School Administrators' Effectiveness in Communication with Use of ICT

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
				df2	Sig. F Change	R Square Change	F Change	df1
1	.584(a)	.341	.339	1.45145	.341	203.974	1	394

a. Predictors: (Constant), Communication.

Table 5 shows that the t-value of 19.371 is greater than the critical t-value of 1.968. The result still shows that school administrators' effectiveness in communication is predicted by use of ICT. The derived prediction equation, using ICT, is: Administrators' use of ICT = 8.669 + .445 effectiveness in communication. By these results in tables 3, 4, and 5, the null hypothesis that the use of ICT does not significantly predict school administrators' effectiveness in communication is rejected. Therefore, the use of ICT by school administrators is a predictor of their effectiveness in communication.

Table 5:
Result of Significance of Prediction Coefficients of School Administrators' Effectiveness in Communication with Use of ICT

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.669	.448		19.371[*]	.000
	Communication	.445	.031	.584	14.282	.000

a. Dependent Variable: Communication.
[*]Significant at .05 alpha level; df 394; critical t = 1.968; and N = 396.

Discussion

The extent of school administrators' use of ICT (Information and Communication Technology) was high in this study. This implies that many secondary school administrators in the study area were literate in ICT and were committed to the use of ICT in their day-to-day administration of schools, especially in the area of communication. The finding of this study is consistent with that of E.U. Etudor-Eyo, G.K. Etuk and R.N. Azewena (2009); and also of S.U. Bassey, D. Okodoko and U.D. Akpanumoh (2009) who, in their respective studies, found that the use of ICT in different organizations is on the high side. This is worth celebrating that school administrators in Akwa Ibom State have yielded to change for the innovative method of school administration rather than holding on to the old and manual way of doing things.

Administrators' effectiveness in communication was high. The effectiveness of secondary school administrators in Akwa Ibom State, Nigeria cannot be disassociated from the use of ICT and the impact of the present team that monitors and supervises the activities of the administrators, staff, and students as the case may be. Many research findings like R.H. Heck, L.K. Johnsrud and J.V. Rosser (2000); G. Marcheggiano *et al*. (2001); and WSIS [World Summit on the Information Society] in Geneva (2003) and Tunis (2005) support the finding of this study.

The study further revealed that secondary school administrators' effectiveness in communication is related to and predicted by the use of ICT. This implies that administrators who subscribe to the use of ICT would perform effectively in their communication. The findings of P. Hook (2004); T. Kalusopa (2005); FMLINK (2006); and J. Anamuah-Mensah (2009) commemorate the finding of this study. As important as communication is in any organization, ICT tools are very necessary in not only secondary schools, but in all sectors, be it public or private. According to P. Hook (2004), the use of ICT helps teachers meet the needs of the gifted and talented children in schools.

However, the study was limited by the design of the study which did not allow for manipulation of any variable of the study; also none of the variables were controlled going by the design which was the ex-post facto design. This only allowed for a survey of opinions from the respondents on the subject matter. Consequently, the psychological state of the respondents could not be controlled. However, the researchers assured the respondents of the confidentiality of their responses as no name was required in the study.

Conclusions and Recommendations

Based on the findings of the study, it was concluded that the extent of administrators' use of ICT (Information and Communication Technology) and the extent of administrators' effectiveness in communication are high. There is a positive relationship between administrators' use of ICT and administrators' effectiveness in communication. The effectiveness of secondary school administrators in

communication depends on the use of ICT. Meaning that with the use of ICT, communication of the administrator becomes very effective but reverses when ICT is not used by the administrator. It implies also that changes in the use of ICT would also cause changes in administrators' effectiveness in communication.

The following recommendations were made in this study: (1) Government should make ICT tools available in all secondary schools for the administrators; (2) Workshops on the use of ICT should be organized from time to time by the governments and NGOs or Non Governmental Organizations for school administrators who are not yet ICT literate; (3) A constant power supply should be made available to schools so that administrators would be able to make use of ICT for communication; (4) Skilled man-power should be employed to teach those administrators who are still illiterate in this regard; and (5) The packages that accompany the computer should be provided by NGOs, the government, and individuals to secondary schools and beyond.

References

Abid, A. (2004). "Information Literacy for Lifelong Learning". *A Paper* presented at the 70th IFLA General Conference and Council of the World Library and Information in Council, Buenos-Aives-Argentina, UNESCO.

Anamuah-Mensah, J. (2009). "The Impact upon Local Development and Digital Inclusion for Small and Medium Business" in *Connect-World ICT Magazine Article,* pp.5-17. Available also at: http://www.Prof.Jophus.Anamuah.Mensah.htm [accessed in Uyo, Nigeria: 24 August 2009].

Bassey, S.U., D. Okodoko & U.D. Akpanumoh. (2009). "Information and Communication Technologies in the Management of Education for Sustainable Development in Africa" in *African Research Review*, 3(3), pp.414-428.

Boakye, K. & D.A. Banini. (2007). "Teacher ICT Readiness in Ghana" in K. Toure, T.M.S. Tchombe & T. Karsenti [eds]. *ICT and Changing Mindsets in Education*. Available also at: http://www.Repenser.I'education.aI'aide.de.TIC.mht [accessed in Uyo, Nigeria: 24 August 2009].

Etudor-Eyo, E.U., G.K. Etuk & R.N. Azewena. (2009). "Appraising the Awareness and Utilization of Electronic Human Resource Information Systems (E-HRIS) by Secondary School Administrators in Akwa Ibom State, Nigeria" in *Nigerian Journal of Educational Administration and Planning,* 2(1).

FMLINK. (2006). "Effective Communication in the Workplace" in http://www.fmlink.com [accessed in Uyo, Nigeria: 24 August 2009].

Giuri, P., S. Torrisi & N. Zinovyeva. (2008). *ICT, Skills, and Organizational Change: Evidence from Italian Manufacturing Firms.* Chicago: Oxford University Press. Available also at: http://www.icc.oxfordjournals.org [accessed in Uyo, Nigeria: 24 August 2009].

Heck, R.H., L.K. Johnsrud & J.V. Rosser. (2000). "Administrative Effectiveness in Higher Education: Improving Assessment Procedures" in *Research in Higher Education*, 41(6). Available also at: http://www.Jstor.org/pss/4019610 [accessed in Uyo, Nigeria: 24 August 2009.

Hook, P. (2004). "ICT and Learning the IPAINT Experience" in *Computers in New Zealand Schools*, 16(3), pp.15-21. Available also at: http://www.wiki-spaces.com [accessed in Uyo, Nigeria: 24 August 2009].

Ibadin, V.O. (2008). "Computer in Educational Planning and Administration" in N.A. Nwagwu, E.T. Ehiametalor & M. Nwadiani [eds]. *Current Issues in Educational Management in Nigeria*. Benin City: NEAP Publications.

Jowssey, D. (2008). "Driving Change Through Increased Utilization of ICT: Thailand" in http://www.thailand.mht [accessed in Uyo, Nigeria: 9 October 2011].

Kalusopa, T. (2005). "The Challenges of Utilizing Information Communication Technologies (ICT) for the Small-Scale Farmers in Zambia" in *Library Hi Tech,* 23(3), pp.414-424. Available also at: http://www.users/Documents/Emerald Article.Request [accessed in Uyo, Nigeria: 24 August 2009].

Kennewell, S., J. Parkinson & H. Tanner. (2007). *Developing the ICT Capable School.* London: Routledge Books, p.11-15. Also available at: http://www.mht/Google.Books [accessed in Uyo, Nigeria: 24 August 2009].

Longe, R.S. & O.G. Agabi. (1990). "Status of Management Information System in Higher Education Institutes in Nigeria" in *African Journal of Educational Management*, 4(1 & 2), pp.104-115.

Marcheggiano, G. *et al*. (2001). "Case Studies of ICT and School Improvement in Italy" in http://intradev.org/els/ict/IT/Too.htm [accessed in Uyo, Nigeria: 24 August 2009].

Mbangwana, M.A. (2007). "Introduction to in Cameroon" in K. Toure, T.M.S. Tchombe & T. Karsenti [eds]. *ICT and Changing Mindsets in Education.* Available also at: http://www.Repenser.I'education.a.I'aide.de.ICT.mht [accessed in Uyo, Nigeria: 24 August 2009].

Ministry of Health in Ghana. (2003). "Ghana Establishes ICT Policy Strategy for Health Sector" in http://www.iicd.org/site.map [accessed in Uyo, Nigeria: 24 August 2009].

Nickels, K.L., M. McHugh & J. McHugh. (2002). "Electronic Communication: An Effective Tool for Organizational Productivity" in http://www.communications.org.hmt [accessed in Uyo, Nigeria: 24 August 2009].

Obeng, T.K. (2004). "Practical Application of ICT to Enhance University Education in Ghana" in http://www.modernghana.com/Ghana/tome/News.Achive/features.asp [accessed in Uyo, Nigeria: 24 August 2009].

Okhiria, P. (2007). "Zinox Spearheads ICT Revolution in Nigeria Schools" in the newspaper of *Vanguard.* Nigeria: Thursday, February 8, p.37.

Ola, V. (2004). "Embrace New Technology Trends" in *The Punch,* p.47.

Telem, M. (2001). "Computerization of School Administration: Impact on Principals' Role: A Case Study" in *Computers in Education*, (37), pp.345-362.

Ukwegbu, K.C. (2005). *Fundamentals of Information Technology.* Benin City: Algate Publishers.

UNESCO [United Nations for Education, Scientific, and Cultural Organization]. (2002). *Information and Communication in Education: A Curriculum for Schools and Programmes for Teachers' Development.* Paris: UNECSO.

World Bank (2007). "Knowledge and Skills for the Information Age: The First Meeting of the Mediterranean Development Forum" in *Mediterranean Development Forum*. Available also at: http://www.world.bank.org/html/fdp/technet/indf/objective.htm [accessed in Uyo, Nigeria: 9 October 2011].

WSIS [World Summit on the Information Society] in Geneva (2003) and Tunis (2005). "Promoting ICT for Development". Available also at: http://www.japandevelopment.Co [accessed in Uyo, Nigeria: 9 October 2011].

Yusuf, M.O. (2005). "Information and Communication Technology: Analyzing the Nigerian National Policy for Information Technology" in *International Educational Journal*, 6(3), pp.316-321.

These days, the use of errand boys, town criers, trained animals, and even the postal services are gradually giving way to the advancement in information and communication technology (ICT). Humanity is currently in an electronic age which is characterized by bridging the gap between distance and time, giving way to information revolution built around information and communication.