

## UTILIZATION OF AVAILABLE INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) AS A CORRELATE OF COMMUNICATIVE AND COMPUTATIVE EFFECTIVENESS OF PRINCIPALS IN PUBLIC SECONDARY SCHOOLS IN IKOT EKPENE EDUCATION ZONE, AKWA IBOM STATE.

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### Abstract

*The study assessed the utilization of available information and communication technology (ICT) as a correlate of principals' management and administrative effectiveness in public secondary schools in Ikot Ekpene Education zone, Akwa Ibom State. Two purposes of the study, two research questions and two hypotheses were raised. Correlational research design was adopted. The population comprised 86 principals and 2008 teachers. A sample of 69 principals and 602 teachers participated in the study. Multistage sampling technique was used to draw the sample. Two instruments titled "ICT Availability and Utilization Questionnaire (ICTAUQ)" and "Principals' Administrative Effectiveness Questionnaire (PAEQ)" were used for data collection. The instruments were validated by three experts from College of Education, MOUAU. Reliabilities of the instruments were established using Cronbach Alpha reliability method, and ICTAUQ yielded a reliability coefficient of 0.85, while PAEQ yielded a reliability coefficient of 0.81. Data from 69 completed copies of ICTAUQ and 602 completed copies of the PAEQ were used for analysis. Mean and Standard Deviation were used to answer the Research Questions while the hypotheses were tested using Linear regression analysis and multiple regression .05 alpha level. Results showed that utilization of the available computer spreadsheet in data management significantly correlates with the principals' administrative effectiveness. The utilization of the available ICT predict 60% of the principals' effectiveness in areas of communication, computation of result and data management in public secondary schools in Ikot Ekpene Education Zone of Akwa Ibom State. The finding implies that the use of ICT in areas of communication, as well as computation of results and for data management exert very high influence on principals' effectiveness in public secondary schools. It was recommended that the government should give in-service training to serving principals on effective utilization of ICT facilities to assist them on effective school administration.*

**Keywords: Data management, Communication, Computation, ICT, Utilization**

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### Introduction

In recent years, ICT utilizations have been effective in education administration and management to support sustainable development. Following the dramatically accelerated change in scope and pace around the world, the work of administrators has changed in organizations, including schools, from manual and mechanical to electronic data processing, storage, output, and

communication. Taylor and Hogenbirk (2001) suggested that the transformational rate of change might find professionals outdated in their own profession, thus countries that do not integrate policies of scientific and technology development with education components will be left behind. School principals are no exception; they face the challenges of change in their operations. Administrators' participation in professional development is crucial for any meaningful change to occur as they have a vital role to play. Data use in school administration currently ranges over multiple areas, informing administrators about demographics, school processes as well as perceptions and projections (Bernhardt, 2000). School administrators and teachers should get started on data analysis and database work, wherever they are, for school improvement. School principals in Akwa Ibom State cannot perform their administrative duties without accurate, timely, sufficient, and relevant information.

According to Asfhari, Ghavifekr, Saedah and Rahmad (2012), school principals should have basic skills of using ICT in school daily administrative and management job. Principals function as role model when computer technology is applied to administrative and managerial task. As an instructional leader, principals facilitate teachers integration of computer in teaching and learning (Singh & Muniandi, 2012), as transformational leaders they encourage creativity, open – mindedness and facilitate conditions and events that create a positive environment for technology adoption (Asfhari et al, 2012). Mwalongo (2011) has found that people in administration use computer to prepare school announcements, reports, letters for meeting with parents, student registration. Besides, computer is also used effectively by principals to process, store and retrieve administrative information (Selwood, 2004).

### **Statement of the Problem**

Considering the important role that the school principals play in the instructional process, it is argued that the more knowledgeable, skillful and up-to-date a principal is in the utilization of information and communication technology, the more likely will he achieve the administrative effectiveness.

There are problems associated with poor record keeping which with the proper utilization of ICT infrastructure in school administration, these problems could be rectified. Poor record keeping causes waste of time in trying to get records to work with. Sometimes, records are unavailable when they are needed because of difficulty of retrieving information due to the fact that the record had not been properly filed or kept. But with the use of computer, which could store up thousands of files in its memory, it only requires the utilization of ICT resources to enhance administrative effectiveness. It is in recognition with this that the researcher conceives that utilization of information and communication technology will enhance principals' administrative effectiveness in Ikot Ekpene Education Zone, Akwa Ibom state.

### **Purpose of the Study**

The purpose of this study is to assess the utilization of available information and communication technology (ICT) as a correlate of principals' management and administrative effectiveness in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State. Specifically, the study seeks to:

1. Find out the extent to which the utilization of available ICT correlate with principals' data management effectiveness in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State.
2. Find out the extent to which the utilization of the available ICT correlate with principals' effectiveness in areas of communication, computation of results and data management in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State.

### **Research Questions**

1. To what extent does the utilization of available ICT correlate with principals' data management effectiveness in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State?
2. To what extent does the utilization of available ICT correlate with principals' effectiveness in areas of communication, computation of result and data management in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State?

### **Hypotheses**

The following null hypotheses guided the study at 0.05 level of significance.

- HO<sub>1</sub> The utilization of the available ICT does not significantly correlate with principals' data management effectiveness in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State.
- HO<sub>2</sub> Utilization of available ICT does not significantly correlate with principals' effectiveness in area of communication, computation of result and data management in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State.

## **REVIEW OF RELATED LITERATURE**

### **ICT Utilization and Principals' Data Management Effectiveness**

Information and communication technology, according to Nwangwu (2005), is the process in which information (input) is recorded, stored and retrieved (processed) for decision (output) on planning, coordination and controlling, that the information communication technology focused on understanding the processes, systems and mechanisms pertaining to information storage, absorption, transfer, presentation and processes through understanding the scientific principles in school management. In discussing what educational ICT is, Adedoyin (2008) articulates that in general, ICT refers to the totality of methods and tools that are used in gathering, storing, processing and communicating information. Data management on the other hand is the process by which the required data is acquired, validated, stored, protected and processed, and by which its accessibility, and timeliness is ensured to satisfy the needs of the data users. It is the effective, efficient and systematic control of the processes of creating, receiving, maintaining and disposing valuable information about the organization (Bluin, 2000). The actualization of effectiveness in secondary schools depends on proper data management. These should be done not only for safe keeping but so that they (data) can be found when needed (Bello, 2005). The introduction of ICT in the management of education could become an antidote in providing effective solutions to educational problems that would have been difficult, if not possible to solve through human effort.

Data management as well as its administration is a vital responsibility of school administrator because of the indispensable role that records play in effecting the day-to-day operations as well as those affecting long term policies. School administrators relied on information that is on print. For effective utilization of information, there should be a proper system of storing and retrieving data when needed. School administrators must ensure that all data necessary for effective decision making and communication are up to date. This assertion agreed with the position held by Mbipom (2000) when she postulated that at both the primary and secondary levels, the school administrator needed a lot of information to be able to plan, organize and administer effectively, it is difficult to carry all the important information in one person's head. This explains why every good institution keeps specific records steadily. Also, recording data electronically, sorting it centrally, and sharing it with colleagues are vital to reducing workloads through available ICT infrastructures (Devon, 2004).

### **ICT Utilization and Principal's Administrative Effectiveness in areas of communication, computation of result and data management**

Definitely, the school principal needs the assistance of ICT equipment such as the computers to neatly produce his documents, reproduce and keep them for future use. The ability of the school head to effectively plan and manage his school nowadays is enhanced by the use of ICT equipment for downward and lateral communications, computation of results, and data management. ICT serve as necessary aid to the principal in the area of record keeping (Awoyokun, 2009). Computer is used for data processing which facilitate decision making for effective administration, classroom management and individual student management, markings, analyzing tests, grading, diagnosis and the monitoring of learners progress, improves efficiency and productivity level of information, computer perform intensive tasks and stores large volumes of data and information. Grades assigned to students must be recorded in some fashion, and these records must be easily and readily accessible to appropriate individuals (Ward, 2010).

The use of computer in educational administration reduces time expended on clerical or paper work tasks, produce accurate information, ensure generation of reports when needed, and facilitate decision making process. ICT equipment is very useful in the management of a library. It will be herculean task for a librarian to keep the records of periodicals; books and other library materials manually. On this note, the following are some of the essential records that could be found in most secondary schools that enhance efficient and effective administration - admission register, attendance register, log book, query book, school diary, school cash book; and time book (Mbipom, 2000).

## **METHODS**

### **Research Design**

Correlation research design was used for the study.

### **Area of the Study**

The study was carried out in Ikot Ekpene Education Zone, Akwa Ibom State. It is made up of Nine Local Government Areas namely: Oruk Anam, Ikot Ekpene, Obot Akara, Ukanafun, Ikono, Etim Ekpo, Essien Udim, Ini and Abak.

### **Population of the Study**

The population comprised all the 86 principals and 2008 teachers in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State, Nigeria (State Secondary Education Board, 2016).

### **Sample and Sampling Technique**

A sample of 69 principals and 602 teachers serving in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State participated in the study. Multi-stage sampling technique was used to select sample. The sample represents 80 per cent of the principal population in public secondary schools in Ikot Ekpene Education Zone. Thereafter, 30 per cent of teachers in the selected 69 public secondary schools were proportionately selected using systematic random sampling technique.

### **Instrumentation**

Two instruments were developed and used by researcher for data collection in this study. They are ICT Availability and Utilization Questionnaire (ICTAUQ) for principals and Principals' Administrative Effectiveness Questionnaire (PAEQ) for teachers.

### **Validation of the Instrument**

The instrument (ICTAUQ and PAEQ) used for the research was made to pass through face and content validation using experts in test, measurement and evaluation.

### **Reliability of the Instrument**

The reliabilities of the instruments were established using Cronbach Alpha reliability method. Cronbach Alpha Reliability method is a statistical measure of internal consistency of an instrument. To do this, the researcher conducted a pilot study using 20 principals and 20 teachers in secondary schools which were not used for the study. The analysis produced 0.78 coefficient value.

### **Procedure for Data Collection**

The researcher with three briefed research assistants administered copies of the questionnaires (ICTAUQ and PAEQ) to all the sampled secondary school principals' and teachers respectively in the study area.

### **Method of Data Analysis**

Pearson was used to answer the research questions, while Linear regression analysis was used to test hypothesis at 0.05 level of significance.

## **RESULT AND DISCUSSION OF FINDINGS**

### **Results**

**Research Question 1:** How does the utilization of the available ICT correlate with principals' data management effectiveness in public secondary schools in Ikot Ekpene Education Zone of Akwa-Ibom state?

**Table 1: Relationship between the Utilization of the Available ICT and Principals' Data Management Effectiveness.**

R	R-square	Adjusted R-square	Std Error of Estimate
.761 <sup>a</sup>	.579	.577	.730

The data in table 1 shows that the r – square calculated value is 0.58. This r calculated value however indicates a highly positive relationship. This further shows that the utilization of the available ICT predicted 58% of the principals’ data management effectiveness.

### Hypothesis One

The utilization of the available ICT does not significantly correlate with principals’ data management effectiveness in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State.

**Table 2: Regression Analysis on the Relationship between the Utilization of the Available ICT and Principals’ Data Management Effectiveness**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	134.880	1	134.880	253.073	.038 <sup>b</sup>
	Residual	356.577	669	.533		
	Total	149.457	670			

The table above shows that the F- value was 253.07 while the significant value was 0.038. Since the significant value of 0.038 is less than the alpha value of 0.05, the null hypothesis stated was rejected and the alternate accepted. Therefore, the utilization of the available significantly correlates with the Principals’ data management effectiveness.

**Research Question 2:** To what extent does the utilization of the available ICT correlate with principals’ effectiveness in areas of communication, computation of result and data management in Public secondary schools in Ikot Ekpene Education Zone of Akwa-Ibom state?

**Table 3: Relationship between the Utilization of the Available ICT and Principals’ Effectiveness in areas of Communication, Computation of Result and Data Management**

R	R-square	Adjusted R-square	Std Error of Estimate
.639 <sup>a</sup>	.608	.606	.280

Data in table 3 shows the r calculated value of 0.61 which implies a highly positive relationship. The r calculated value suggests that the utilization of the available ICT predict 61% and principals' effectiveness in areas of communication, computation of results and data management in public secondary schools in Ikot Ekpene Education zone of Akwa Ibom State.

**Hypothesis Two:** Utilization of available ICT does not significantly correlate with principals' effectiveness in area of communication, computation of result and data management in public secondary schools in Ikot Ekpene Education Zone, Akwa Ibom State.

**Table 4: Multiple Regression on the Utilization of the Available ICT and Principals' Effectiveness in areas of communication, Computation of Results and Data Management.**

<b>Model</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	218.716	3	72.905	932.464	.040 <sup>b</sup>
Residual	51.792	664	.078		
<b>Total</b>	<b>270.508</b>	<b>670</b>			

The table above reveals that the F-value was 932.46 while the significant value was 0.040. Since the significant value of 0.040 is less than the alpha value of 0.05, the null hypothesis stated is rejected and the alternate hypothesis accepted. Therefore, the utilization of the available ICT significantly correlates with the principals' effectiveness in areas of communication, computation of results and data management.

### **Discussion of Findings**

Result of the analysis in table 1 revealed that the utilization of the available ICT predicted 58% of the principals' data management effectiveness. The findings agreed with Selwood (2004) who found that computer spreadsheet applications are used to prepare timetable, to handle financial work, store records and maintain quick communication access. The computer spreadsheet application helps principals in recording school financial documents, such as balance sheet, pay slip, report non-salary, grants and stocks keeping.

Further linear regression analysis shows that the utilization of the available computer spreadsheet in data management significantly correlates with the principals' administrative effectiveness. The present finding supports Bello (2005) who stated that principals are required to keep records not only because it is a statutory duty but because of its value in improving management practices.

The findings in table 3 showed that the utilization of the available ICT predict 60% of the principals' effectiveness in areas of communication, computation of result and data management in public secondary schools in Ikot Ekpene Education Zone of Akwa Ibom State. The finding implies that the use of ICT in areas of communication, as well as computation of results and for data management exert very high influence on principals' effectiveness in public secondary schools. This fact was further affirmed by the result of the analysis of data in Table 4. The result indicated that the utilization of the available ICT significantly correlate with the Principals' effectiveness in areas of communication, computation of result and data management. The findings concur with that of Mbipom (2000) who stated that the computer and other ICT tools would be very handy tools in the hands of an effective school administrator to help him to be effective in his or her school administration.

### **Conclusion**



Based on the findings of this study, it was concluded that the utilization of the available ICT predicted 58% of the principals' data management effectiveness. Also, the test of significance, affirmed that the utilization of the available ICT significantly correlates with the principals' data management effectiveness.

Finally, it was also concluded that the utilization of the available ICT predicted 60% of the principals' effectiveness in areas of communication, computation of result and data management in public secondary school in Ikot Ekpene Education Zone of Akwa Ibom State. This affirmed that observed significant correlation of available ICT significantly correlate with the principals' effectiveness in areas of communication, computation of result and data management.

### **Recommendations**

The following recommendations are deemed necessary:

1. Educating Prospective School Principals: The school principals' should be given in-service training on effective ways of using ICT for computation of results.
2. Computer science teachers already employed in schools should assist in training and educating the ICT-based amateur principals' on effective use of ICT facilities for data management.

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