

## **Information and Communication Technology Competency Needs of Principals in the Management of Secondary Schools in Anambra State.**

Mr. Ofozoba Chinonso Anthony, Ikedimma Ifeanyi

---

**Abstract:** *This study aimed at assessing the ICT competencies needed by secondary school principals for administrative effectiveness in secondary schools in Anambra state. To this end, the researcher outlined 3 purposes, 3 research questions and 3 hypotheses tested at 0.05 level of significance. A descriptive survey research design was adopted for the study. The entire population was used for the study. Data was collected using a questionnaire of 41 items titled ICT Competency Questionnaire (ICTCQ) which was validated by experts from the faculty of education, Nnamdi Azikiwe University Awka. A reliability index of 0.71 was obtained using Cronbach's alpha. Data analysis was done using mean and t-test. The findings revealed that principals of secondary schools in Anambra state need computer operational competency, internet/networking competency and ICT safety competency. However, Male and female principals differed significantly in their mean ratings on ICT competencies needed for administrative effectiveness.*

---

Date of Submission: 18-11-2019

Date of acceptance: 04-12-2019

---

### **I. Introduction**

Nigeria, like most developing countries, is doggedly battling to attain the enviable level of political, socio-economic and technological achievements of the developed countries. One recognizable means by which the country aims to achieve this objective is education. Education in every country of the world has been considered very important for personal and societal development. In order to achieve this, FRN (2013) highlighted that quality education should be given at all levels of education: primary, secondary and tertiary.

Secondary education play a great role in imparting and equipping individuals with knowledge, skills, values and attitudes. The secondary level of education is the link between the primary and tertiary levels.

The importance of secondary education is geared towards providing all primary school leavers with the opportunity for education of a higher level irrespective of gender, social status, religious or ethnic background; offer diversified curriculum to cater for the differences in talents, opportunities and future roles; provide trained manpower in the applied science, technology and commerce at sub-professional grades; develop and promote Nigerian languages, art and culture in the context of world's cultural heritage; inspire students with a desire for self-improvement and achievement of excellence among others (FRN, 2004).

The realization of these goals depends on how the principals of secondary schools are able to synthesize these variables.

The principal is the chief executive who performs the necessary administrative and managerial functions for the improvement of the secondary school system. Williams (2009) observed that today's school principals are expected to be educational visionaries, instructional and curriculum leaders, assessment experts, disciplinarians, community builders, public relations and communication experts, budget analysts, facility managers, special programmes managers, as well as guardians of various legal, contractual and policy mandates and initiatives.

In performing this heavy administrative mandate, the principals need competencies in Information and Communication Technology (ICT). For principals to function efficiently and effectively in this computer age, they must rise to the challenge of adopting new technological resources and services in the management of the school.

Ali (2004) defined ICT as the "physical structure of network of computer based systems for the purpose of organizing, processing, communicating, accessing, presenting, storing, retrieving and simplifying information, when needed and in the form it is needed. In this work, ICT is taken to mean all contemporary digital tools as computer systems, telecommunication systems and multimedia, networked and standalone plus hardware and software, which can be used in education, in order to facilitate the achievement of goals.

Competency on the other hand is an integrative set of knowledge, abilities, attitudes and the capacity to apply and transfer them that creates the premises of successful accomplishment of certain complex activities or tasks and of effective functioning within a given context or role (Glava and Glava 2006). ICT competence

therefore, involves knowledge of skills, knowledge of how and when to apply the skills as well as knowledge of reasons for using the particular ICT or the contributions of that ICT to the solution of problem (Akudolu 2006).

Most secondary school principals in Nigeria (Anambra state inclusive) appear to lack the necessary competencies in ICT needed for the realization of educational objectives and for administrative effectiveness. This has presented challenges to Nigeria and indeed Anambra state in its bid to run and deliver education needed for sustainable development of the state. Anambra state government under the leadership of Governor Peter obi in 2013 supplied over twenty-five thousand computers and other ICT facilities to secondary schools across the state. A great deal of funds have also been invested to facilitate the integration of ICT in schools in the state. But in spite of these large expenditure of funds, the potential for ICT to alter principals' use of computer for instructional and administrative purposes in secondary schools in Anambra state seem not been fully realized. It was based on this background that this study investigated ICT competencies needed by secondary school principals for administrative effectiveness.

There are male and female principals in secondary schools in Anambra state and the ICT competencies they need for administrative effectiveness might be influenced by gender. A number of works that studied influence of gender on leadership and management have shown conflicting theoretical positions and results (Madzar, 2001; Clissbee 2004; Starcher, 2006). This suggests the relevance of gender as a variable that needs to be further studied in relation to ICT competencies principals need for administrative effectiveness. In view of this, there is need to ascertain whether male and female principals differ significantly in the ICT competencies they need for administrative effectiveness.

### **Statement of the problem**

Secondary education is geared towards providing all primary school leavers with the opportunity for education of a higher level irrespective of gender, social status, religious or ethnic background; offer diversified curriculum to cater for the differences in talents, opportunities and future roles; provide trained manpower in the applied science, technology and commerce at sub-professional grades; develop and promote Nigerian languages, art and culture in the context of world's cultural heritage; inspire students with a desire for self-improvement and achievement of excellence among others. Secondary schools in Anambra state seem not to have lived up to its expectations in achieving these lofty objectives. The principals who are expected to be educational visionaries, instructional and curriculum leaders, assessment experts, disciplinarians, community builders, public relations and communication experts, budget analysts, facility managers, special programmes managers, as well as guardians of various legal, contractual and policy mandates and initiatives appear to lack the necessary competencies in ICT to be able to effectively carry out these administrative duties. This has presented challenges to Nigeria and indeed Anambra state in its bid to run and deliver education needed for sustainable development of the state. The aim of this study therefore is to investigate the ICT competencies needed by secondary school principals for administrative effectiveness.

### **Purpose of the study**

The main purpose of the study was to investigate the ICT competencies needed by secondary school principals for administrative effectiveness. Specifically the study investigated:

1. Computer operational competencies needed by secondary school principals for administrative effectiveness
2. Internet/networking competencies needed by secondary school principals for administrative effectiveness
3. ICT safety competencies needed by secondary school principals for administrative effectiveness.

### **Research Questions**

The following research questions guided the study

1. What are the computer operational competencies needed by secondary school principals for administrative effectiveness?
2. What are the internet/networking competencies needed by secondary school principals for administrative effectiveness?
3. What are the ICT safety competencies needed by secondary school principals for administrative effectiveness?

### **Hypotheses**

The following null hypotheses were tested at 0.05 level of significance.

1. Male and female principals will not differ significantly in their mean ratings on the computer operational competencies needed for administrative effectiveness.
2. Male and female principals will not differ significantly in their mean ratings on internet/networking competencies needed for administrative effectiveness.
3. Male and female principals will not differ significantly in their mean ratings on ICT safety competencies needed for administrative effectiveness.

## **II. Literature Review**

### **Information and Communication Technology Competency**

Edafiohgo (2007) refers to Information and Communication Technology (ICT) competencies as the skills and abilities of school principals for using computers to store and retrieve information when needed. The increasing complexity of education business and the corresponding pressure on available resources, demand that school administrators should depend on powerful management information systems to achieve effective school management. The ICT provides administrators opportunities that enable them to learn and reach out to other sources of administrative knowledge. In fact, according to Edafiohgo (2007), as administrators become increasingly information-literate, they develop skills in processing, interpretation, analyzing and conveying knowledge. He further remarked that ICT has the capacity for automatic processes and saves time thereby allowing school administrators to concentrate as well as improve the quality of contact time with staff and students. If administrative functions at schools and other levels of the educational system are to be carried out efficiently and effectively, it is necessary that our educational administrators should be knowledgeable in ICT, since no administrator can rise above the level of what he knows. Secondary school principals are expected to have acquired a number of competencies including ICT skills, during the pre-service training. At the moment, ICT has brought much challenge to all areas of school administration. And as rightly noted by Association of African Universities (AAU) ICT Reports (2005), competency in ICT would facilitate administrative activities in staff management, students' administration, finances, assets and maintenance, office activities and communication. In order to perform the duties of a principal effectively, Gurr (2000) and Bishop (2002) pointed out that the principal's knowledge and competence in ICT is essential.

It therefore can be established that principals have a lot of roles to play in school administration. They require improvement in ICT competencies in carrying out these roles. Accordingly, this study identified three key ICT competency areas. These include: computer operational competency, internet/networking competencies and ICT safety competencies.

### **Computer Operational Competency**

Basic operational knowledge and skill of computer is a core ICT competency needed of every school principal. Even where most principals have firm ideas of how they would like to apply ICT in the school administration, many of them appear to be held back by lack of technical skills and knowledge. Anyone with fair knowledge of ICT will agree that competency in operating computer is pre-requisite for acquiring other ICT competencies. Computer has been defined as device that automatically performs operations, sort files and edits; making it possible to process information with great speed, accuracy and reliability (Okoroafor, 2010). It combines the efforts of hardware, software and personnel to operate (Okwuanaso, 2004). The computer hardware comprises all physical components of the computer which remains useless and is more of a toy without the software. Software is a collection of instruction which enables the user to interact with the computer or have the computer perform specific tasks. The computer software comprising the system software and application software is the force behind all the performance of the computer. The system software according to Okoroafor (2010) is a low level program that interacts with the computer at a very basic level. It includes operating software which runs the computer; utility that performs maintenance or general purpose chores; and compiler with which computer programs are created. The application software (a.k.a. end-user program) is designed to help perform a singular or multiple related specific tasks. Depending on the work it is designed for, an application can manipulate text, numbers, graphics, or a combination of these elements.

### **Internet/networking Competency**

The Internet provides up-to-date information on a variety of topics on school administration unavailable from other sources. The content of textbook, library and principal's knowledge is enhanced by this medium. The Internet is a global information system that includes communication capabilities and many high level applications. The web is one of such applications. The existing connectivity of the internet according to Okoroafor (2010) made it possible for users and servers all over the world to participate in this activity. To participate fully and gain the benefits offered by the Internet and networking, the principals must acquire new set of skills – digital literacy. Pelgrum (2006) formulated that digital literacy is “process awareness, attitude and ability of constructive social action to appropriately use digital tools and facility to identify, access, manage, integrate, evaluate, analyze and synthesize digital resources, construct new knowledge, create media expression and communicate with others in the context of specific life situations. With the mass of information available online, the ability to access, select and administer relevant data is considered a key competence. Digital literacy, meaning the constructive and critical application of ICT is the key to effective school administration. Proficiency in ICT also serves as a catalyst for literacy, numeracy, and many subject based competencies. Familiarity with the etiquette of text messaging, electronic mail, downloading and saving data, using different search engines are necessary internet/networking competencies for any principal. Gaps in online access and

inadequate internet/networking competency on the part of the principals could have some severe implications on their administrative effectiveness.

### **ICT Safety Competency**

ICT has been applauded for its numerous contributions to socio-economic development. Yet it must be acknowledged that ICT has been a force for bad and good and generated a whole set of issues. Baase (2002) explained that innovations in ICT has revolutionized how people buy and sell products, record, store, and playback media, communicate with others and many other aspects of life. Today many people rely on computer/networking to do homework, work, create or store useful information and communicate with others. Engaging in online activities entails sharing information with friends and strangers all over the world. Information transferred over the network has a high security risk. To have positive Internet experience, it is important to develop protective behaviors to safeguard oneself, friends, family and properties while dealing with others online. In addition to the part of bridging the digital divide that has to do with giving people tools and training to access ICT, there is also need to build people's capacity to understand the basics of online safety and responsibilities. It is important that information transmitted over a network is handled and kept properly. Extremely important also is to protect computers from data loss, misuse and abuse. Business data, school records, credit card numbers and personal data must be adequately shielded from computer or computer network security risks when participating in online transactions. A computer security risk as defined by Deguzman (2007) is any action that could cause loss of information to software, data, processing incompatibility or damage to computer hardware. Feldman (2007) noted three important areas principals need to consider when using the Internet:

1. Know how to protect computer from viruses and spyware
2. Be aware of privacy issues related to networking and
3. Understand safety and security risks in participating online

In integrating ICT into education, the principals have as part of their responsibility, to ensure safety of all participants – students, teachers, and the school; as well as the safety of the ICT hardware and software. This demands a good knowledge of security risks and ethics in ICT usage. Principals need to be clearly informed about what and what not to do and where to go for help. They need to know why they do what they do and limit of their responsibility. Principals need ICT safety competencies to guard against inappropriate use of the technology both on their part, and in the part of teachers and students, school and technology hardware and software. With these skills, principals can prevent students from using public networking sites when they are in the classroom by monitoring and allowing use of specific sites.

### **III. Method**

A descriptive survey design was used for the study. According to Nworgu (2015), descriptive survey design is one which aims at collecting data on, and describing in a systematic manner the characteristics, features or facts about a given population. The present study fits into the descriptive survey because the researcher collected information from secondary school principals and on the basis of that information, determined the various ICT competencies they need for managerial effectiveness in secondary schools in Anambra state.

#### **Population of the Study**

The population of the study consisted of all the 257 principals of public secondary schools in the six education zones of Anambra State.

#### **Instrument for Data Collection**

The instrument for data collection was a structured questionnaire adapted from Okoroafor (2010). It was originally subdivided into four groups with a total to 57 questionnaire items. It was reduced to three sections with 41 items for this particular study. The instrument was rated on a four-point scale of Highly Needed, Needed, Fairly Needed, Not Needed. The respondents were expected to indicate the degree to which each of the items contained in the instrument is needed. The instrument was rated thus:

Highly Needed = 4 Needed = 3 Fairly Needed = 2 Not Needed = 1

#### **Reliability of the Instrument**

The reliability coefficient of the instrument was established with Cronbach alpha ( $\alpha$ ) reliability test from a pilot test administered to a sample of 20 principals drawn secondary schools in Enugu state. The reliability coefficient was found to be 0.71. Thus, the instrument was considered reliable in line with the view of Gliem and Gliem (2003) that the closer Cronbach's Alpha coefficient is to 1.0, the greater the internal consistency of the items in the scale.

**Method of Data Collection**

Data was collected with the help of five research assistants. These assistants were briefed on how to distribute copies of the questionnaire. The respondents were visited at their various schools and the copies of questionnaire administered to them and collected on the spot. The researcher and the assistants administered 257 copies of the questionnaires. Seven copies were invalid and 250 copies were collected back and used for the data analysis. Making a total of 97% return rate.

**Method of Data Analysis**

Mean was used to answer the research questions while t-test was used to test the hypotheses. For the research questions any mean score of above 2.50 was interpreted as needed while mean with less than 2.50 was interpreted as not needed. For the hypotheses a null hypothesis was rejected if the calculated t-value was greater than the critical t-value otherwise the null hypothesis was not rejected.

**Presentation and Analysis of Data**

Research Question one: What are the computer operational competencies needed by secondary school principals for administrative effectiveness

**Table 1: Mean ratings on computer operational competencies needed by secondary school principals for administrative effectiveness**

		N	Mean	Remark
1.	Setting up system computer (CPU, monitor, keyboard and mouse)	250	2.43	NN
2.	Connecting and installing peripheral devices (printer, scanner, etc)	250	2.87	N
3.	Start up and shut down computer	250	2.04	NN
4.	Make backup copies of key applications and documents	250	2.63	N
5.	Using self-help resources to diagnose and correct common hardware problems	250	2.97	N
6.	Installing and upgrading an application	250	2.69	N
7.	Identifying and using icons, windows and menus	250	2.34	NN
8.	Starting an application, Creating and saving document using save and save as command.	250	2.54	N
9.	Using printing options	250	2.65	N
10.	Inserting and ejecting external storage drives (floppy, flash, CD Rom)	250	2.33	NN
11.	Initializing, name/rename storage devices and folders	250	2.47	NN
12.	Copying from hard disk to external storage drives and vice versa	250	2.55	N
13.	Recognizing different file types and adjust file format for easy exchange	250	2.54	N
14.	Effective use of Word processor e.g. MS word, word perfect	250	2.54	N
15.	Effective use of Presentation software e.g. MS PowerPoint	250	2.58	N
16.	Effective use of Spreadsheets eg. MS excel, Multiplan, super Calc	250	2.57	N
17.	Effective use of Databases eg. Microsoft Access	250	2.66	N
18.	Effective use of Desktop Publisher eg MS publisher, Ventura publisher, Adobe pagemaker	250	2.72	N
19.	Effective use of Computer Aided Design eg. AutoCAD. ArchiCAD	250	2.70	N
20.	Effective use of Computer Aided Manufacturing (CAM)	250	2.60	N
21.	Effective use of Graphics design eg. Corel Draw, Adobe illustrator	250	2.66	N
22.	Effective use of Control technology/robotics	250	3.00	N
<b>Grand Mean</b>			<b>2.59</b>	<b>N</b>

**Key (N= Needed, NN= Not Needed)**

The grand mean of 2.59 shows that the respondents identified they need ICT operational competency. The item by item analysis indicated that the respondents identified they need ICT operational competency in 17 out of the 22 areas listed and they include. Connecting and install peripheral devices (printer, scanner, etc), Making backup copies of key applications and documents, Use self-help resources to diagnose and correct common hardware problems, Install and upgrade an application, Starting an application, Creating and Saving document using save and save as command; Using printing options, Copying from hard disk to external storage drives and vice versa, Recognize different file types and adjust file format for easy exchange. Other include: Effective usage of Word processor e.g. MS word, word perfect, Effective use of Presentation software e.g. MS PowerPoint, Effective usage of Spreadsheets eg. MS excel, Multiplan, super Calc. Effective usage of Databases eg. Microsoft Access, Effective usage of Desktop Publisher eg MS publisher, Ventura publisher, Adobe pagemaker. Effective usage of Computer Aided Design eg. AutoCAD. ArchiCAD, Effective usage of Computer Aided Manufacturing (CAM), Effective usage of Graphics design eg. Corel Draw, Adobe illustrator, and In Effective usage of Control technology/robotics. Their mean ranges from 2.54 to 3.00.

**Research Question two:** What are the internet/networking competencies needed by secondary school principals for administrative effectiveness?

**Table 2. : Mean ratings on internet/networking competencies needed by secondary school principals for administrative effectiveness**

		N	Mean	Remark
1.	Evaluating and choosing a suitable connection method to access the Internet	250	3.20	N
2.	Selecting suitable hardware and software needed for different network connection)	250	3.15	N
3.	Lunching and using basic browser facilities for different browsers	250	2.55	N
4.	Evaluating, choosing and using appropriate search engines	250	2.40	NN
5.	Customizing browser settings to improve and maintain performance	250	2.86	N
6.	Evaluating online information for relevance, bias, validity, reliability and sufficiency	250	2.34	NN
7.	Using suitable techniques for easy search eg bookmarks & favorite	250	2.70	N
8.	Creating websites and publish materials on the web	250	3.40	N
9.	Creating and using e-mail account for exchanging information with others	250	2.45	N
10.	Downloading and saving data – images, files, software & drivers	250	2.48	NN
11.	Purchasing materials online	250	3.60	N
<b>Grand Mean</b>			<b>2.83</b>	<b>N</b>

**Key (N= Needed, NN= Not Needed)**

The grand mean of 2.83 in table 2 indicates that the respondents need internet/networking competency for administrative effectiveness. The item by item analysis shows that the respondents indicated they need internet/networking competency in eight out of the eleven areas listed. They include: In evaluating and choosing a suitable connection method to access the Internet, Selecting suitable hardware and software needed for different network connection, Lunching and using basic browser facilities for different browsers, Customizing browser settings to improve and maintain performance, Using suitable techniques for easy search eg bookmarks & favorite, Creating websites and publish materials on the web, Creating and use e-mail account for exchanging information with others and Purchasing materials online. With mean ranging from 2.55 to 3.60.

**Research Question Three:**

What are the ICT safety competencies needed by secondary school principals for administrative effectiveness?

**Table 3: Mean ratings on ICT safety competencies needed by secondary school principals for administrative effectiveness.**

		N	Mean	Remark
1.	Recognizing ownership of digital information and guard against digital theft and plagiarism	250	3.50	N
2.	Identifying and managing inappropriate/unwanted online contact	250	2.40	NN
3.	Changing privacy settings to protect privacy and personal information online	250	2.75	N
4.	Using antivirus and spywares to protect computer from network attacks – virus, Trojan horse, worm etc	250	3.40	N
5.	Blocking students’ access to irrelevant websites and materials	250	3.00	N
6.	Preventing opportunities for online abuse and exploitation	250	2.75	N
7.	Preventing unauthorized network connections being created	250	2.48	NN
8.	Applying safety principles in protecting the computer or network from virus attack eg. scan every incoming document/program before opening or running	250	2.80	N
<b>Grand Mean</b>			<b>2.89</b>	<b>N</b>

The grand mean of 2.89 shows that the respondents indicated they need ICT safety competency. The item by item analysis shows the areas of ICT safety which the respondents need competency. They include: In Recognizing ownership of digital information and guard against digital theft and plagiarism, Changing privacy settings to protect privacy and personal information online, Use antivirus and spywares to protect computer from network attacks – virus, Trojan horse, worm etc, Block students’ access to irrelevant websites and materials, Preventing opportunities for online abuse and exploitation, and in Applying safety principles in protecting the computer or network from virus attack. Their mean ranges from 2.75 to 3.50.

**Hypothesis one**

Male and female principals will not differ significantly on computer operational competencies needed for administrative effectiveness.

**Table 4: T-test of difference between male and female principals’ ratings on computer operational competencies needed for administrative effectiveness.**

	Mean	SD	N	Df	t-cal	t-crit	Decision
Male	2.40	0.90	124	255	-25.91	1.96	S
Female	2.78	1.04	133				

Table 4 shows that the difference in the mean ratings of male and female principals regarding computer operational competencies needed for administrative effectiveness is significant. This was shown by the t-calculated value of -25.91 which is greater than the critical value of 1.96 at alpha level of 0.05 and degree of freedom (df) 255. The null hypothesis was therefore rejected.

**Hypothesis two**

Male and female principals will not differ significantly on internet/networking competencies needed for administrative effectiveness.

**Table 5: T-test of difference between male and female principals' ratings on internet/networking competencies needed for administrative effectiveness.**

	Mean	SD	N	Df	t-cal	t-crit	Decision
Male	2.73	0.90	124	255	-16.90	1.96	S
Female	2.93	0.84	133				

The t-test analysis in table 5 shows that the difference in the mean ratings of male and female principals regarding internet/networking competencies needed for administrative effectiveness is significant. This was shown by the t-calculated value of -16.90 which is greater than the critical value of 1.96 at alpha level of 0.05 and degree of freedom (df) 255. The null hypothesis was therefore rejected.

**Hypothesis three**

Male and female principals will not differ significantly on ICT safety competencies needed for administrative effectiveness.

**Table 6: T-test of difference between male and female principals' ratings on ICT safety competencies needed for administrative effectiveness.**

	Mean	SD	N	Df	t-cal	t-crit	Decision
Male	2.78	1.30	124	255	-7.26	1.96	S
Female	3.00	1.49	133				

The t-test analysis in table 6 shows that the difference in the mean ratings of male and female principals regarding ICT safety competencies needed for administrative effectiveness is significant. This was shown by the t-calculated value of -7.26 which is greater than the critical value of 1.96 at alpha level of 0.05 and degree of freedom (df) 255. The null hypothesis was therefore rejected.

**IV. Discussion**

Table 1 depicts that 17 out of 22 computer operational competencies listed are needed by principals of secondary schools in Anambra state. This is a clear indication that computer operational skills are core technical skills needed by every principal. More than half of the competencies in computer operation scored above 2.50 mean. This indicates that principals need this category of ICT competencies to be able to perform their administrative functions effectively. This result is not surprising since computer operational skills are pre-requisite to acquiring other ICT competencies. Almas and Nilsen (2006) observed that technical skills were the first step to acquire knowledge about ICT. The study of Williams et al (1998) revealed that even where educators have firm ideas of how technology can be applied in the school system, they were held back by lack of technical skills and knowledge. However, the findings of this study is in contrast with the study of Saud (2005) who identified computer operating skills as the lowest computer technology educational needs of Malaysian teachers. Possibly, because teachers in Malaysia possess these skills already and need more advanced skills in ICT; whereas principals in Anambra state are yet to get acquainted with the rudiments of ICT (i.e. computer operational skills).

It was also found that principals needed 8 out of the 11 competencies listed under Internet/networking competency as displayed in table 2. The most favored Internet competency was purchasing materials online. Possibly principals need this competency to access relevant educational materials from the web and communicate with colleagues on professional level.

The findings of this study is in line with the study of Government of Western Australia (2005) which found that more than 56% of educators use ICT to communicate with colleagues and to access online research

and best practices. This study also found accessing online research and best practices as the second top most needed teaching professional ICT competency. With the mass of information available online, the ability to access, select and administer relevant data is considered a key competence. Familiarity with text messaging, electronic mail, downloading and saving data are a vital competencies. Gaps in online access and inadequate ICT competence on the part of the principals could have serious repercussions and may hamper their administrative effectiveness.

The result in table 3 shows that principals needed 6 out of the 8 ICT safety competencies. The most needed competency was to recognize ownership of digital information and guard against digital theft and plagiarism. This is a clear indication of how serious the crime of plagiarism is in academic work. Protecting the computer from virus attack was also highly needed. This competency is important to protect computer from data loss. Deguzman, (2007) emphasized that it is important that principals and teachers know how to protect school records, personal data and credit card numbers from network security risks when participating in online transactions. Willard (1996) noted that ICT is best served by people who value individual freedom but recognize that freedom must be balanced by personal responsibility, respect for others and concern for the common good.

The study also established that gender is a significant factor in terms of ICT competency needed by principals regarding computer operational, internet/networking and ICT safety competencies. From the findings of this study it was revealed that female principals indicated they need these ICT competencies more than the male principals as they have greater mean scores for the three competency areas under study. This findings agrees with the opinion and findings of some researchers who maintained that females are technophobia and men technopholic (Samak, 2006; Sadik, 2005; Stabile, 1994).

## V. Conclusion

With respect of the findings of this study, it is concluded that:

1. Principals of secondary schools in Anambra state need computer operational competency, internet/networking competency and ICT safety competencies.
2. Male and female principals differed significantly in their mean ratings on ICT competencies needed for administrative effectiveness.

## References

- [1]. Akudolu, L.R. (2006) Quest For Teacher Needed Competencies For Instructional Use of ICT. A Paper presented at the National Conference of Nigerian Primary and Teacher Education Association at Enugu State University of Science and Technology.
- [2]. Ali, M. M. & Halim, A. (1997). Training and Professional Development: Improving Agricultural Extension. A Reference Manual. FAO, Rome.
- [3]. Almas, A. G. and Nilsen, A. G. (2006) ICT Competencies for the Next Generation of Teachers. Current Developments in Technology- Assisted Education, 468-472.
- [4]. Association of African Universities AAU/ICT Report (2005). Available on line at <http://www.qqu.org/English/Documents/aau-ict-reportp.31.htm> and accessed on 20 October, 2008.
- [5]. Baase, S. A. (2002) A Gift of Fire: Social, Legal and Ethical Issues in Computing. Upper Saddle River, NJ, USA: Prentice Hall PTR.
- [6]. Bishop, P. F. (2002). Information and communication technology and selected leaders. Paper presented at the seventh world conference on Computer in Education at Copenhagen. Available on line at: <http://www.scribd.com/doc/1002583/ICT-leadership-in-school-Education>. Retrieved on 15 July, 2010.
- [7]. Clisbee, M. A. (2004). Leadership style: do male and female school superintendents lead differently. (Doctoral dissertation) The University of Massachusetts-Lowell. UMI ProQuest Digital Dissertations, AA T 3122967.
- [8]. Deguzman, V. (2007) Computer Security Ethics and Privacy. <http://webreference.com/Internet/security/> Retrieved 22/02/2010.
- [9]. Edifiogho, D.O.C. (2007). Educational reforms in tertiary institutions through application of information and communication technology (ICT). In B.G. Nworgu (ed). Optimization of service delivery in the education sector: Issues and strategies. UTP: Nsukka.
- [10]. Federal Republic of Nigeria (2013). National Policy on Education (6th Ed.) Lagos: NERDC press.
- [11]. Feldman, B. J. (2007) What Teachers Need to Know About Internet [http://www.surfnetkids.com/safety/what\\_teachers\\_need\\_to\\_know\\_about\\_Internet\\_safety-](http://www.surfnetkids.com/safety/what_teachers_need_to_know_about_Internet_safety-) Retrieved 22/02/2010.
- [12]. Glava, C. and Glava, A. (2006) Development of General and Specific Teaching Competencies through the Educational Use of ICT. Current Development in Technology Assisted Education, 366-370.
- [13]. Gliem, J. A. & Gliem R. R. (2003). Calculating, interpreting, and reporting.
- [14]. Government of Western Australia (2005) Teacher ICT Skills. Evaluation of Information and Communication (ICT) Knowledge and Skills Levels of Western Australia Government Teachers. Western Australia: Evaluation and Accountability Department of Education and Training.
- [15]. Gurr, D. (2000). The impact of ICT on the work of school principals. *Leading and Managing*, 6(1), 63-67.
- [16]. Madzar, S. (2001). Subordinates' information inquiry: Exploring the effect of perceived leadership style and individual differences. *Journal of Occupational and Organizational Psychology*, 74(2), 221-233.
- [17]. Nworgu, B. G. (2015). Educational research: Basic issues and methodology. (3<sup>rd</sup> ed.). Nsukka: University Trust Publishers.
- [18]. Okoroafor, A. O. (2010). Information and communication technology (ICT) competencies needed by tertiary technical teachers in south east Nigeria. A thesis report presented to Department of Vocational Education Faculty of Education Nnamdi Azikiwe University, Aawka.
- [19]. Okwuanaso, S. I. (2004) Information Communication Technology and Enhancement of Vocational Education. In C. V. Nnaka, and A. A. Okafor, (Eds) Information Communication Technology (ICT) and Enhancement of Education in the 21st Century in Nigeria. Umunze: Federal College of Education.



- [20]. Pelgrum, H. (2006) Monitoring Digital Literacy: Frameworks, Indicators and Actors. Paper at EU Elearning Conference Helsinki.
- [21]. Sadik, A. (2005) Factors influencing teachers attitude towards personal use school use of computers: New evidence form a developing nation. *Evaluation review* 2 (1) 1-29.
- [22]. Samak, Z. A. (2006) Exploration of Jordanian English Language. Teachers' Attitude, Skill and Access as Indicators of Information and Communication Technology Integration in Jordan. Unpublished Doctoral Thesis Florida State University.
- [23]. Saud, M. S. (2005) Computer Technology Competencies Perceived as Needed by Vocational and Tertiary technical teachers in Malaysia. Ph.D. Dissertation of the Graduate School of the Ohio State University.
- [24]. Stabile, C. (1994) *Feminism and the Technological Fix*. Manchester: Manchester University Press.
- [25]. Starcher, L. S. (2006). The relationship between leadership practices of principals and student achievement. (Unpublished doctor Dissertation).Marshall University, United States of America.
- [26]. Willard, N. (1996). *The Cybermetics Reader*. McGraw Hill.
- [27]. Williams, D., Wilson, K., Richardson, A., Tuson, J. and Coles, L. (1998) Teacher ICT Skills and Knowledge Needs. Final report to Scottish Office Education and Industry Department (SOEID) <http://WWW.scotland.gov.uk/library/ict/append.section5.htm> Retrieved 16/09/2009.
- [28]. Williams, H.S. (2009). An evaluation of principal in terms performance on the interstate school leaders licensure consortium standards. *National Forum of Educational Administration and Supervision Journal*, 26(4), 1 – 22.

Mr. Ofozoba Chinonso Anthony. "Information and Communication Technology Competency Needs of Principals in the Management of Secondary Schools in Anambra State." *IOSR Journal of Research & Method in Education (IOSR-JRME)* , vol. 9, no. 6, 2019, pp. 57-65.