ICT Proficiency and Lecturers' Job Effectiveness in Technical and Vocational Education (TVET)

Ekoro, Ekoro Igo
E-mail: eekoro80@gmail.com
Phone: 08039516783
Department of Business Education
Cross River State College of Education, Akamkpa

Ogban, Usang Ekume
E:mail: usangogban@gmail.com
Phone: 07084224530
Department of Business Education
Cross River State College of Education, Akamkpa

Akposi, Asuquo Felix
E-mail:princeasuquo1234@gmail.com
Phone: 07034489666
Department of Business Education
Cross River State College of Education, Akamkpa

Abstract
The main concern of this study is to find out the influence of ICT proficiency on lecturers' Job Effectiveness in the school of vocation and technical Education (SVTE) in three Nigerian colleges of Education (Federal college of Education-Obudu, Cross River State College of Education, Akamkpa and College of Education Afaha Nsit). Three hypotheses were formulated to guide the study. The sampling technique used for this study was stratified and simple random sampling techniques. The stratified technique allow the researcher to place the three sampled colleges in strata before applying simple random sampling technique in each stratum. A total sample size of 149 college lecturers consisting of 74,32and 43 respectively from the three colleges was used for the study. The data for this study were collected using ICT Proficiency and Lecturers' Job Effectiveness Questionnaire (ICTPLJEQ). The instrument was presented to two experts in measurement and evaluation for content validation. Split half technique and Pearson correlation formula was used to obtain a reliability coefficient of 0.65, which ascertained that the instrument was reliable for the study. The data in this study were analyzed using Chi-square and One-way Analysis of variance (ANOVA) statistical tools. The results of the study showed that male and female lecturers did not differ significantly in their level of ICT proficiency. The result from the study also shows that there is a significance difference in the use of ICT among Lecturers in the three colleges. Lecturers with high ICT competence were found to be more efficient in classroom instruction, publication/research, communication, recordkeeping and computation of students' result than those with moderate and low ICT competence. The findings of this study revealed that the level of ICT competence of lecturers significantly enhanced their job effectiveness. Based on the findings of the study, it was recommended that lecturers should be well encouraged by the management of colleges to develop their ICT proficiency as this has been found to improve job effectiveness for high productivity.

College management on their part should encourage lecturers in School of Vocational and Technical Education to enroll in ICT training programmes both within and outside their institutions, the study also recommended that, ICT facilities should be made available in lecturers' offices as this will enhance their job effectiveness.

Keywords: Colleges of Education, ICT Proficiency, Job Effectiveness, Lecturers,

Introduction

The goal of Colleges of Education is to provide quality teachers for the primary and junior secondary levels. It is expected to contribute to national development by intensifying and diversifying its programs for the development of high manpower needs of the nation and making professional teaching course contents to reflect our national needs (FRN, 2004). These objectives could be attained through effective teaching, research and other related academic activities. For college vocational and technical lecturers to carry out their job professionally and effectively particularly in this age of knowledge-based technology and globalization, the use of information and communication technology (ICT) becomes imperious. Interestingly, Colleges of Education all over the world are rapidly incorporating information and communication technology (ICT) into all facets of teaching, research and management. Teachers who succeed in making use of ICT in their work processes do not only contribute to improved learning outcomes in their students, but also benefit personally from enhanced work productivity (Carlson & Gadio, 2000).

Vocational and Technical lecturers have various tasks to accomplish and these range from teaching, research and publications, marking of tests and examinations, compiling students' results, supervising students' research activities, supporting students through advisory roles, attending conferences, providing community services etc. In other for them to be effective and resourceful, they need to acquire an appreciable level of ICT competence. This is necessary in order to meet up with the demands of their job. Jusuf (2005) and Daniel (2002) reported that overwhelming majority of teachers in Europe use ICT to plan lessons more effectively and more efficiently. With the use of ICT, teachers have also been able to communicate and collaborate with other teachers and this improves their job performance.

ICT involves a process of creating, processing, storage, retrieval and dissemination of information and data using computers and telecommunications (Akpan, 2008). In education, it involves the application of digital equipment to all aspects of teaching and learning. Thus, ICT encompasses a combination of technologies for collecting, storing, processing, communicating and delivering of information related to teaching and learning processes (Johnson, 2007). Onuma (2007) reports that ICT can be used to enhance teaching effectiveness, prepare lesson plan, collect and analyze students' achievement. Thus, curriculum contents could be enriched through search in the internet. Akpan (2008) states that ICT can improve the quality of researches and publications in the universities through the use of information and quality materials from the internet and can also facilitate record-keeping by teachers. Therefore, the importance of ICT in enhancing lecturers' job efficacy cannot be overemphasized.

Akpan (2014) cited Radloff (2001) identifies the importance of ICT in enhancing the quality of teaching and learning to include:

(a) Providing encouragement for staff and students to reflect on how they teach and learn.

(b) Applying theory and research on learning and principles of good instructions to designing online learning environments.

(c) Making teaching and learning more visible and public.

Journal of Educational Realities–JERA

pISSN 2536-6661, eISSN 2536-6653Vol.9, No.1, July/Sept, 2019
A Publication of the Department of Vocational Education, University of Uyo, Nigeria

Benchmark Journals

(d) Encouraging collaboration and team work among staff and students.
(e) Offering greater access to learning for more people.

ICT competence as used in this study refers to the ability of a university teacher to make use of the various ICT tools such as e-mail, facsimile, internet, world wide web, intranets, extranets, online databases and other networking technologies in the performance of their job. Efficacy means having the ability to do what is defined as desired or to be effective in producing the desired result. It encompasses teacher efficiency and effectiveness.

It is teachers' confidence in their abilities and capabilities to produce quality outcome in the performance of their job. An effective and efficient teacher is one who does things right, attempts to solve job-related problems, avoid waste of resources and ensures quality output. Lecturers' ICT competence can help in this direction.

Statement of the Problem

In this age of globalization, job efficiency of academic staff in higher institutions cannot be divorced from the level of ICT proficiency which is essential for quality academic productivity. However, it is quite unfortunate that some college teachers in Technical and Vocational Education (TVET) still do not identify the prospects that ICT presents for improving the efficiency and effectiveness of their job. Some of them lack knowledge that would aid the application of ICT skills in instructional delivery, research and record management. This results in the low utilization of ICT among teachers in the teaching/learning situation (Jusuf, 2005). Research reports have shown that overwhelming majority of teachers in Europe use ICT to plan lessons more efficiently (Jusuf, 2005 & Daniel, 2002). Although, researches have been carried out on the impact of ICT competence on job efficacy of teachers in the western world and in Universities in Nigeria (Akpan, 2014). Little or no researches have been done in this area in colleges of education and School of Vocational and Technical Education in particular in Nigeria. This study therefore, investigate the extent to which lecturers' level of ICT in School of Technical and Vocational Education in Nigeria Colleges of Education influence their job efficiency.

Purpose of the Study

The purpose of the study is to find out the extent to which
(1) Male and female lecturers differ in their level of ICT proficiency
(2) Lecturers from different colleges differ in their level of ICT proficiency
(3) The level of ICT competence influence lecturers' efficacy in
(a) Classroom instruction
(b) Research/publications
(c) Communication
(d) Compiling students' result
(e) Record-keeping

Null Hypotheses

H_O1: Male and female lecturers do not differ significantly in their level of ICT competence.
H_O2: Lecturers from the sample schools do not differ significantly in their level of ICT proficiency
H_O3: The level of ICT competence of college lecturers does not significantly influence their proficiency in
(a) Electronic computation of result
(b) Research/publication
(c) Communication
(d) Classroom instruction

(e) Record – keeping

Information and Communication Technology (ICT) is a broad term that covers the acquisition, processing, storage and dissemination of information. It involves the application of computers and communication technology in the task of information handling, data and information flow from the generation to the utilization levels. It is restricted to systems dependent on microelectronics based combination of computers and telecommunication technologies. The IT is the boon for mankind, it gives accessibility to information at fingertips (Ekoro & Ofem, 2015).Information and communication technology (ICT) encompasses the effective use of equipment and programs to access, retrieve, convert, store, organize, manipulate and present data and information (Gay & Blades, 2005). The use of ICT has been found by researchers to improve job efficiency and effectiveness of teachers. Wheeler (2000) discovered in his study that the use of ICT improves efficiency in educational process and effects changes in teaching methodology, assessment of learning, student tracking, communication and evaluation. Thus, the use of ICT by university teachers reduces workload (Omenyi, Aju & Odimegwu, 2007). In support of this finding Balanskat, Blamire and Kefala (2006) reported that ICT is being increasingly used by teachers in their day-to-day work leading to increased efficiency in planning and preparation of work. Similarly, Holdich (2002) reported that ICT programs like web-based and computer-based analysis of written works save the time the teacher spend in marking students' scripts. Thus, in this era of information and communication technology, institutions should start investing in modern educational technologies which will provide innovative learning environment where both teachers and students could move beyond the limits of school building for information, interaction and enrichment. This is what job efficiency of university lecturers is all about. According to Becta (2004), ICT equips teachers with new innovations in education and in teaching and research.

In a study conducted by Omenyi, Agu and Odimegwu (2007), it was found that on the average, teachers feel that ICT have helped them to increase their classroom efficiency. They also discovered in their study that teachers' perception of their increased job efficiency was associated with the level of ICT competence possessed by the teachers. This finding suggests that ICT is effective in providing educational delivery to students. In a similar research, Soffer and Raban (2003), Ramajah, Jantan and Aafagi (2003) discovered a significant difference in ICT competence between male and female teachers. This finding was supported by the work of Dholakia and Kshetri (2003) who reported low level of ICT competence among female teachers.

Omenyi, Agu and Odimegwu (2007) attributed this finding to the societal role expectations of the African women which places a lot of restrictions on them. However, these findings were at variance with the work of Wong, Sidek, Aida, Zakaria, Kamariah, Hamidah and Hanafi (2005) who reported that females rated themselves to be more competent than males in ICT especially in inserting and editing texts for word processing, inserting texts and deleting slides for presentation, using search engines and downloading files from web and using e-mails for communication. The researchers attributed these findings to the fact that the majority of the female academics used in the study were younger than their male counterparts. Thus younger age has been found to be associated with more favorable attitudes towards ICT (Jennings & Onwugbuzie 2001). Jusuf (2005) and Olulube (2006) in their studies showed that teacher ICT competence in Nigeria is below expectation and access to ICT resources like the internet and computer is mostly limited in campuses of various higher institutions. This finding is supported by the work of Akpan (2008) who reported that lecturers' perception of the role of ICT in management of university education

was significantly low. The implication of these findings is that the level of university teachers' ICT competence could greatly impact upon their job efficiency in classroom teaching, communication, students' record keeping, and research/ publication.

The digital divide can be seen as connection and knowledge gap between communities or countries. According to Michel (2001), the digital gap can generally be defined as an inequality in relation to the possibilities of reaching and of contributing to information, knowledge and the networks, such as profiting from the major capacities of development offered by ICTs. These elements are some of the most visible in the digital gap, which actually results in a combination of vast socio-economic factors, in particular the insufficiencies of the infrastructures, the high cost of the access, the lack of local creation of contents and the unequal capacity to benefit, on economic and social levels, of activities with strong intensity of information.

In a study conducted by Jerry and Susan (2011) on the influence of digital divide among teachers, the findings from the research shows that teachers at the other side of the divide with adequate ICT facilities are more proficient than teachers at the side of the divide with low ICT facilities. This is because with adequate ICT facilities, effective utilization of ICT facilities is ascertained given the adequate training and exposure on the use of the facilities.

The survey design was adopted for this study. This design was appropriate because it dealt with the study of a large population by collecting and analyzing data from only a sample of the population. The design studies the opinion, attitude and behavior of people.

Population of the Study

The study population consisted of 174 lecturers from the school of vocational and technical Education from Cross River State College of Education- Akamkpa, Federal college of Education- Obudu and College of Education – Afaha Nsit. These institutions were chosen because of proximity and also because these institutions are in the same geopolitical zone.

A breakdown of the population revealed that there were 35 lecturers in school of vocational and technical Education from Cross River State College of Education- Akamkpa, 91 lecturers in school of vocational and technical Education from Federal college of Education- Obudu and 48 lecturers in school of vocational and technical Education from Akwa Ibom State College of Education – Afaha Nsit, (Offices of deputy Registrar Department of Establishment 2016).

Sampling Technique and the Sample

The stratified and simple random sampling techniques were used in selecting the study sample. This method was necessary to ensure that every member of the population had equal and independent chance of being selected. Yamane (1967) provides a simplified formula to calculate sample sizes.

$$n = \frac{N}{1 + N(e)^2}$$

This formula was used to calculate the sample sizes from each stratum. Where n is the sample size, N is the population size, and e is the level of precision. The level of precision, sometimes called sampling error, is the range in which the true value of thepopulation is estimated to be. This range is oftenexpressed in percentage points, (e.g., ±5 percent), inthe same way that results for political campaign pollsare reported by the media. Using this technique, 32 academic staff were randomly selected from Cross River State College of Education- Akamkpa, 74 academic staff from Federal college of Education- Obudu and 43

Benchmark Journals

academic staff from College of Education – Afaha Nsit. This gave a total sample size of 149 lecturers from the three institutions. A breakdown showed that 37 were females and 112 were males.

Research Instrument

The instrument for data collection was a questionnaire developed by the researcher and titled "ICT Proficiency and Job Efficiency Questionnaire (ICTPJEQ)" for lecturers. The instrument consisted of two sections. Section A dealt with personal and demographic data such as gender, educational qualification, age, and years of working experience. Section B consisted of two parts, I and II. Part I measured lecturers' level of ICT competence in terms of ability to use e-mails, facsimile, browsing of internet, spread sheet, download files and ability in word processing , use of computer, power point, store and retrieve information etc. Each item had 4 response options of highly competence, moderately competence, lowly competence and not competence. The respondents were required to tick one option against an item. Part II was also a 4-point Likert type scale consisting of 24 items. Each item had 4 response options ranging from Strongly Agree (SA), Agree (A) to Disagree (D) and Strongly Disagree (SD). The variables under consideration here were lecturers' effectiveness in classroom instruction, electronic result computations, research /publications, communication and record-keeping. Each of these variables was measured with 4 items. The respondents were required to indicate the extent of their agreement or disagreement with each item by ticking one of the 4 options against each item.

To determine the reliability of the instrument, a trial test was carried out. The research instrument was administered to 28 lecturers in School of Art and Social Science (SASS) Cross River State College of Education Akamkpa. A reliability coefficient of 0.74 was obtained using test re-test method. This was high enough for the instrument to be considered reliable. The instrument was administered to the respondents in their respective institutions with the help of a research assistant. All copies of the questionnaire were correctly filled and returned. With a 4-point Likert rating scale, items that were positively worded were scored 4 points for Strongly Agree, 3 points for Agree, 2 points for Disagree and 1 point for Strongly Disagree responses respectively.

Results

H_O1: Male and female lecturers do not differ significantly in their level of ICT competence. To test this hypothesis, a Chi-Square statistical technique was used in the data analysis. The result is shown is shown in table 1.

Table 1: Chi- Square (X^2) Analysis of the Difference in the Level of ICT Competence between Male and Female Lecturers (n = 149)

Gender	Level of ICT proficiency			
	High	Moderate	Low	Marginal
Female	14(13.91)	16(16.14)	7(6.95)	37
Male	42(42.09)	49(48.86)	21(21.05)	112
Total	56	65	28	149

Applying the Chi-Square statistics $\chi^2 = \sum \dfrac{(o_i - e_i)^2}{e_i}$

Calculated Chi-square (X^2) value = 0.002869
df. = 2
Critical X^2 - value = 5.99p > .05

Journal of Educational Realities–JERA
pISSN 2536-6661, eISSN 2536-6653Vol.9, No.1, July/Sept, 2019
A Publication of the Department of Vocational Education, University of Uyo, Nigeria

Benchmark Journals

The data on table 1 reveal that the calculated X^2– value of 0.002869 is less than the critical X^2– value of 5.99 at .05 level of significance and 2 degrees of freedom. Given this result therefore, the null hypothesis is upheld. This means that male and female lecturers do not differ significantly in their level of ICT competence.

H_O2: Lecturers from the sample schools do not differ significantly in their level of ICT proficiency

To test this hypothesis, a Chi-Square statistical technique was used in the data analysis. The result is shown is shown in table2.

Table 2: Chi- Square (X^2) Analysis of the Difference in the Level of ICT proficiency among Lecturers from the sample school (n = 149)

Institutions	Level of ICT proficiency			
	High	Moderate	Low	Marginal
FCE-Obudu	22(27.8)	33(32.28)	19(13.91)	74
COE-Akamkpa	18(12.03)	10(13.96)	4(6.01)	32
COE –Afaha Nsit	16(16.16)	22(18.76)	5(8.08)	43
TOTAL	56	65	28	149

Calculated Chi-square (X^2) value = 9.58

df. = 4

Critical X^2 - value = 9.488 p> .05

The data on Table 2 reveal that the calculated X^2– value of 9.58 is greater than the critical X^2– value of 9.488 at .05 level of significance and 2 degrees of freedom. Given this result therefore, the null hypothesis is rejected. This means that Lecturers from the sample schools differ significantly in their level of ICT proficiency

H_O3: The level of ICT competence of college lecturers does not significantly influence their proficiency in
(a) Electronic computation of result
(b) Research/publication
(c) Communication
(d) Classroom instruction
(e) Record – keeping.

To test this hypothesis, a one- way Analysis of Variance (ANOVA) test statistics was used to analyzed the data. The result is presented in Table 3

Table 3: Summary of One-Way Analysis of Variance of the influence of ICT competence on TVET Lecturers' Job Proficiency. (N=149)

Lecturers' proficiency in	Source of variance	Ss	Df	Ms	F	Sig.
Electronic computation of results	Between	4015.439	2	2007.720		
	Within	2381.433	146	16.311	123.289*	.000
	Total	6396.872	148			
Research/ publications	Between	2960.141	2	1480.070	69.870*	.000
	Within	3092.745	146	21.183		
	Total	66052.886	148			
Communication	Between	1608.56	2	804.028	32.018*	.000
	Within	3666.307	146	25.112		
	Total	5274.362	148			

Journal of Educational Realities–JERA

pISSN 2536-6661, eISSN 2536-6653Vol.9, No.1, July/Sept, 2019
A Publication of the Department of Vocational Education, University of Uyo, Nigeria

Benchmark Journals

Classroom Instruction	Between	959.921	2	479.960	16.761*	.000
	Within	4180.724	146	28.635		
	Total	5140.644	148			
Record Keeping	Between	1718.903	2	859.451	34.306*	.000
	Within	3657.688	146	25.053		
	Total	5376.591	148			

*Significant at .05, df (2 & 146) : critical - F= 3.00

The result of analysis of data presented on Table 3 reveals that the calculated F-values for lecturers' job proficiency in electronic computation of results (F=123.289), research/publication (F=69.870), classroom instruction (F = 16.761), communication (F = 32.018), record-keeping
(F = 34.306) are all greater than the critical F-value of 3.00 at .05 level of significance with 2 and 146 degrees of freedom. With this result, the null hypothesis is therefore rejected, while the alternate hypothesis is upheld. This means that lecturers' level of ICT competence significantly influences their job proficiency in electronic results computation, research/publication, communication, classroom instruction, and record-keeping.

Discussion of Findings
From the findings of this study, it was revealed that gender does not significantly influence lecturers' level of ICT proficiency. In other words, male and female lecturers do not differ significantly in their level of ICT proficiency.
This finding illustrates that male and female lecturers used in the study are familiar with the use of ICT tools on a regular basis for academic work. The finding also suggests that gender should not be considered as a major factor that can hamper or promote ICT proficiency among lecturers. Further elucidation to this finding is that perhaps both male and female lecturers must have seen the need to acquire ICT skills to enable them to reduce pressure of work in terms of time and energy and to enhance their job efficiency. The acquisition of appropriate ICT competence enables academic staff to meet up with the demands of their job. The finding of this study agrees with the research findings of Jusuf (2005) and Daniel (2002) who reported that overwhelming majority of teachers (males and females) in Europe use ICT to plan and teach their lessons more efficiently and effectively. However, the finding is in disagreement with the works of Soffer and Radan (2003), Ramajah, Jantan and Aafaqi (2003), Omonyo, Agu and Odimogwu (2007), who reported a significant difference in ICT competence between male and female teachers.
Also, the findings of the study revealed that there is a significant difference in the level of ICT proficiency among Lecturers from the various selected institutions. This is as a result of the level of ICT facilities available in those institutions and the quality of ICT training programmes implemented. This is in agreement with the conducted by Jerry &Susan (2011) on the influence of digital divide among teachers, the findings from the research shows that teachers at the other side of the divide with adequate ICT facilities are more proficient than teachers at the side of the divide with low ICT facilities. This is because with adequate ICT facilities, effective utilization of ICT facilities is ascertained given the adequate training and exposure on the use of the facilities.
Another finding of the study shows a significant influence of teachers' level of ICT competence on their efficiency in electronic result computations, classroom instruction,

Journal of Educational Realities–JERA

Benchmark Journals

pISSN 2536-6661, eISSN 2536-6653Vol.9, No.1, July/Sept, 2019
A Publication of the Department of Vocational Education, University of Uyo, Nigeria

research/publication, communication and record-keeping. The trend is that the higher the level of ICT competence of teachers, the more efficient they are in their job. Thus, lecturers' job efficiency is a characteristics of their level of ICT competence. This finding could be attributed to the fact that majority of the Lecturers in SVTE in recent times have realized the importance of ICT in achieving job efficiency and effectiveness because it accelerates quicker and easier communication and network which allows them to perform their tasks more rapidly and comprehensively. Moreover, majority of college lecturers in SVTE now have their personal laptops connected to the internet through the use of their personal modems and Wi-Fi network from their Android and smart phones. With this they can access information easily in the world-wide web and in databases, communicate quickly with both students and colleagues through the use of text messages, mobile phone calls, e-mails and facsimile and also keep tracks of students records. This enhances their ability to produce the desired result in the discharge of their professional responsibilities.

This finding is in agreement with the work of Wheeler (2000) who reported that ICT competence improves efficiency in educational process and effect changes in teaching methodology, assessment of learning, student tracking, communication and evaluation. Thus, ICT equips teachers with new skills and innovations in education and in teaching and research (Becta, 2004). The present finding is also in agreement with the research finding of Omenyi, Agu and Odimegwu (2007) who reported that teachers' perception of their increased job efficiency was associated with the level of ICT competence possessed by the teachers. This helps them to increase their efficiency in classroom teaching, research and publications. Thus, lecturers who are competence in the use of ICT tools can easily download new materials from the internet which can be used for lecture preparation and teaching. They can also search for research materials in the internet and publish research findings in reputable international journals of their choice (Akpan, 2014).

Conclusion

In the light of the findings of this study, it could be concluded that male and female college teachers do not differ significantly in their level of ICT proficiency. This indicates that gender is not a major factor that can hamper or promote lecturers' ICT competence. Thus, male and female lecturers are positively inclined towards the positive effect of ICT competence .The study also revealed that digital divide is a major factor hindering ICT competence among college lecturers. Furthermore, the findings of the study reveals that the level of ICT competence of lecturers enhances their job efficacy in electronic results computation, classroom teaching, research and publications, communication and record-keeping.

Therefore, lecturers' job effectiveness is a characteristics of lecturers' level of ICT competence.

Recommendations

The following are the recommendations made base on the findings of the study:
  i.   Provosts of colleges should encourage both male and female lecturers to participate in ICT training programs.
  ii. The management of colleges of education should ensure that academic staff in their offices have access to internet.
  iii. College lecturers on their own should enroll in ICT training programmes when those programmes are not available in their institutions.

References

Akpan, C. P. (2008). Lecturers' perception of the Role of ICT in the Management of UniversityEducation for Sustainable Development in Nigeria. *Nigerian Journal of Educational Administration and Planning.* 8 (1), 113-127.

Akpan, C. P. (2014). ICT competence and Lecturers' job efficacy in Universities in Cross River State Nigeria. *International journal of Humanities and social sciences. 4*(10). 259-266

Balanskat, A., Blamire, R. & Kefala, S. (2006). The ICT Impact Report. [Online] Available: www.insight.eun.org. (September, 2016).

Becta,(2004). What the research says about ICT and reducing teachers' workloads. [Online] Available: www.becta.org.u/research. (September, 2013).

Carlson, S. & Gadio, C. T. (2002). Teacher Professional Development in the use of ICT. In Haddah, W. D. & Draxler, A. (eds.). *Technology for Education* (pp. 118-131) Washington DC: UNESCO: Academy for Educational Development.

Daniel, J. (2002). *Foreword: Information and Communication Technologies in Teacher Education:* A Planning Guide. A Division of Higher Education. UNESCO.

Dholakia, R. R., Dholakia, N. & Kshetri, N. (2003). Gender and Internet Usage. In H. Bidgoli (ed.) *The Internet Encyclopedia*. New York: Wiley. Federal Republic of Nigeria (2004) National Policy on Education. 4th Edition. Abuja: NERDC.

Ekoro, E .I& Ofem U.E (2015). The role of Computer Assisted Instruction (CAI) in enhancing students'Mastery of keyboarding in Cross River State College of Education, Akamkpa. *Niger Delta Journal of Education* (NIDJOE) 3(1)

Gay,G. & Blades, R. (2005*). Information Technology for CXC CSEC*. Oxford, UK: Oxford UniversityPress.

Holdich, C. E. (2002). Assessing aspects of Children's Written Grammar: Automating the process. *Computer and Education. 39*(1), 37-50.

Johnson, O. A. (2007). Enhancing Quality in Higher Education through information and communication technology in Nigeria. In J. B. Babalola, G. O. Akpa, A. O. Ayeni & S. O. Adedeji (eds.).*Access, Equity and Quality in Higher Education*. NAEAP Publication.

Jennings, S. E. & Onwuegbuzie, A. J. (2001). Computer attitudes as a function of age, gender, Mathematics attitude and developmental status. Journal of Educational Computing Research. 25 (4), 367-384. [Online] Available: http://eric.ed.gov. (August, 2016)

Michel, A. (2011). Addressing the Digital divide. [Online]. Available: http://www.capurro.de/augsbury2- program.html

Olulube, N. P. (2006). Appraising the relationship between ICT usage and integration and the standard of teacher education programs in a developing economy. International Journal of Education and Development using Information and Communication Technology (IJEDICT). 2 (3), 70-85. [Online] Available: http://www.questa.com/library/IP3-1136485201. (August, 2016).

Omenyi, A. Agu, N. N. & Odimegwu, C. O. (2007). Increasing Teacher Efficiency through ICT usage in Tertiary Education. Nigerian Journal of Educational Administration and Planning (NAEAP). 7 (2), 107-119.

Onuma, N. (2007). Utilization of Information and Communication Technology in School; Problems andSuggestions in J. B. Babalola, G. O. Akpa, A. O. Ayeni & S. O. Adedeji (eds.). Access, Equity and Quality in Higher Education. NAEAP Publication.

Radloff, A. (2001). Getting online: The challenges for academic staff and institutional leaders. [Online] Available: http://www.ascilite.org.au/conference/melbourne. (September. 2016).

Soffer, T. & Raban, Y. (2003). Gender and ICT's: Implications for Policy and Strategy. E-Living Consortium. [Online] Available: www.eurescon.de/e-living.com. (August, 2013)

Wheeler, S. (2000). The role of the teacher in the use of ICT Learning Technology Research. Keynote speech delivered at the National Czeh Teacher's Conference, University of Western Bohemia, May 20, 2000.

Wong, S, L., Sidek, A . A., Aida, S. M. Y., Zakaria, S., Kamariah, A. B., Hamidah, M. & Hanafi, A. (2005). Gender Differences in ICT competences among Academicians at University Putra, Malaysia. Malaysian *Online Journal of Instructional Technology. 2* (3), 62-69. [Online] Available: http://www.myjurnal. (August, 2016).

Yamane, T. (1967). Statistics: an Introductory Analysis, 2nd Ed., New York: Harper and Row.