
Teachers' Characteristics and Student Competence on Achievement in Computer Studies, in Cross River State, Nigeria

Ofem Ubi ARIKPO

Institute of Education, University of Ibadan, Nigeria.
ofem.arikpo@yahoo.com +2347034694679

Joy C. DURUAMAKU-DIM

Department of Curriculum and Teaching
Faculty of Education, University of Calabar, Nigeria.

Abstract

Teaching and learning of Computer Studies requires new approaches to develop in students' reasonable level of competence in the use of computer. Available literature, shows that many studies over the years focused on the use of computer resources in teaching and learning processes, with only a few addressing teacher factors and student competence. This study therefore, examined teacher characteristics and competence of student on achievement in Computer Studies. Survey design was adopted, Simple random sampling was used to select Ikom and Calabar education zone. Purposive sampling was use to select 41 schools (Ikom-21, Calabar-20). From each selected school, JSS 1, 2 and 3 students were randomly selected. A total of 2,127 students and 63 Computer Studies teachers participated in the study. A Teachers' Computer Competence Questionnaire (TCCQ) $r = (0.74)$; Students' Computer Competence Questionnaire (SCCQ) $r = (.83)$ and Computer Studies Achievement Test (CSAT) for JSS 1, 2 and 3 ($r = .76$, $r = .82$ and $r = .78$) were used for data collection. Data were analysed using descriptive statistics and multiple regression at 0.05. Forty-four percent of the teachers qualified in teaching Computer Studies and 80.0% indicated competence in computer use. The three variables jointly predicted student' achievement in Computer Studies $F_{(3,2110)} = 19.464, P < 0.05$, Teachers Competence [$\beta = -.041$, $t_{(2110)} = -1.979, p < .05$] and Student Competence [$\beta = .133$, $t_{(2110)} = 6.372$, $p < .05$], significantly predicted students' achievement in Computer Studies. Hence, competence is a persuasive variable predicting student achievement in Computer Studies at the upper basic level education. So, for teaching of Computer Studies to be effective, teachers and students' competence should be improved on.

Keywords: Teacher Qualification, Competence, Student Competence and Achievement in Computer Studies.

INTRODUCTION

The teaching and learning of Computer Studies requires new educational approaches to face societal challenges. Teachers no longer depend on traditional ways of imparting knowledge to students, which led to the emergence of new forms of teachers in respect to qualification and competence in the classroom. Conversely, in the global world, computer use is gaining popularity in recent years with a huge influence on improvement of student's analytical skills, promoted creativity and stimulated learner centred learning opportunities in educational system. The introduction of Computer Studies in Nigeria schools is to develop in students' reasonable level of competence in the use of computer and other ICT facilities. Children are expected to be equipped with new skills and to develop competence in them to a reasonable

extent, in order to survive in the world of work. Arikpo (2017) holds the opinion that the idea of Computer Studies into the Nigerian educational system is to provide opportunities and challenges to teachers and students, for progress in the teaching and learning processes.

In the same vein, Adebayo (2008) in Adefunke, Ayodele and Olufemi (2014), maintained that in this new age of information explosion every average individual wants to explore the information system, which make Computer Studies very important subject to every individual and for national development. Yusuf (2005) established that the benefit and impact of computer to the individual and the society make Computer Studies an essential part of the educational system. Similarly, the federal government of Nigeria as a matter of priority to meet up with the standard of what is happening around the world with respect to the new technological development. The involvement of Computer Studies into the school curriculum as needed tool for survival and as activity every child should be exposed to in order to achieve her stated objective in the new era is very paramount.

Nigerian Educational Research and Development Council (NERDC, 2007) and the United Nations (UN, 2005) specified that, the introduction of Computer Studies education in the school system is one of the approaches that aimed at changing classroom teaching and learning process. The Federal Government of Nigeria acknowledged the role of Computer Studies as an innovation for attaining Millennium Development Goals (MDGs) and Education For All (EFA). Hence, this necessitated the inclusion of Computer Studies as part of the curricula that every Nigerian child should be exposed to, starting from the basic level of education (Arikpo, 2017).

In view of this, the importance of Computer Studies in most fields of human endeavours, cannot be underestimated especially when one considers its usefulness in science and technology. The use of technology during the early years in classrooms holds a lot of benefit for teachers, students as well as parent. Computer Studies as used in this study refers to the process of teaching children the basic concepts relating to a computer and its operations as well as knowing the basic components of a computer system. Computer Studies in schools signify the use of computers, telecommunication devices and cables to transfer information to the students. This type of technology has provided quite a number of new opportunities for schools to harness and use Computer Studies facilities to support and complement teaching and learning process using a curriculum. Hence, the qualification of the teacher is an essential part of instruction in a school system.

In the same way, the quality of education of any nation could be determined by the quality of her teachers (Abe, 2014, Ndukwe, 2002). Teacher qualification is concerned with what they are made of in their new teaching profession, considering their level of experience, certification and other instructional behaviours that aids the child to learn better. Abe and Adu (2013) and Abe (2014) holds the opinion that qualified teachers are those who have academic training as a result of enrolment into educational institution and have obtained qualifications such as HND, BSc., B.Ed., NCE, etc. while professionally qualified teachers are those who have registered and have obtained academic training in a subject that gave knowledge, skills, technique different from the general education (Edu & Kalu, 2001) in (Abe, 2014). Furthermore, Goldhaber (2003), Olatoye (2006), Bhaskar (2002) and Akinsolu (2010), asserts that, teachers' qualification have a significant effect on students' academic achievement, and their level of competence may be valuable in applying the skills gained by the students. Effandi and Zanaton (2007) suggests that the quality of education that teachers provide to learners is highly dependent upon what teachers do in the classroom. Which means, in preparing children to become successful individuals tomorrow, the teacher need to ensure that their teaching is effective by ensuring how children learn and confirming what approach to use with the available resources that will prove their competence.

Competence as one of the variables in this study refers to abilities that require an individual's knowledge and skills to accomplish a stated task in an educational program. Teachers who lack adequate mastery of their subject area and who are not well informed about the developments in their subject area will have little or nothing to offer to learners (FRN, 2004). Knezek and Christensen (2002) asserts that teachers' competence with computer technology is a key factor for effective teaching of Computer Studies. Teachers' competence in this study refers to the new ability of teacher to apply varying terms of their knowledge of content of instruction and classroom practices in the selected topics from Computer Studies. Teacher competence in Computer Studies empowered instructors to use computers in a fundamental way while dealing with students.

The effectiveness of teachers in teaching Computer Studies in school could be determined by the quality of training undertaken by the teacher at all level. For instance, Kathleen (2010) established that in most primary schools in Australian, children go off with a specialist teacher to a computer laboratory one hour in a week for their Computer Studies lesson. With this, many teachers have felt satisfied that Computer Studies syllabus was being "covered" by the weekly specialist classes, while many classroom teachers' lack confidence and skills as expected in teaching. Westera (2001) is of the view that competence of the teacher is reveal when they have the ability to master complex situation that goes beyond knowledge and skills of the subject matter and could be applied in the learning process. In recent time, literature has shown that academic achievement is determined by many variables, including teacher qualification, competence, and student competence among others (Aremu & Sokan, 2003; Aremu, 2000).

Besides, achievement in Computer Studies has been a matter of great concern not only to parent but also to stakeholders like as: Teachers, School Administrators, Parents as well as Policy Makers etc. Their concern in the society is to see that, activities in school account for the achievement of students at all levels. This implies that if parents, government, and teachers fail to perform their duties as expected in the education of the child, it is likely to affect students' level of achievement and educational objectives (Yusuf & Afolabi, 2010; Tekos & Solomonidou, 2009). Accordingly, the Federal Republic of Nigeria (FRN, 2004), maintains that Nigeria educational philosophy must be capable of encouraging independent thinking on the part of the teacher, to inculcate into the learners the ability to tolerate the views and feelings of others as well as have respect for dignity and labour.

Research Questions

To guide this study, the following research questions were formulated:

- What is the profile of computer studies teachers in upper basic level of education with respect to Teacher qualification?
- To what extent would the three predictor variables (Teacher qualification, Teacher competence and Student competence) when taken together predict student academic achievement in Computer Studies?
- What is the relative contributions of each of the three factors (Teacher qualification, Teacher competence and Student competence) when taken together predict students' academic achievement in Computer Studies?

METHODOLOGY

Population and Sampling procedure

The study adopted survey research design type. The population comprises upper basic level students (1, 2 and 3) in public schools and their computer studies teacher. Multi-stage sampling procedure was used to select students used for the study. First, simple random sampling was used to select Calabar and Ikom education zone. Purposive and Proportionate to size sampling technique were used to select 41 schools (21 from Ikom and 20 schools from Calabar education zone). Furthermore, from each of the selected schools, an arm each from upper basic 1, 2 and 3 were randomly selected. All the students in the selected classes responded to the questionnaires and were retrieved with the help of teachers and research assistant. In all, 123 classes, 2127 students as well as 63 computer studies teachers were used. Sixty three teachers were used because in some schools, only one computer teacher taught the three levels.

Instrument

The study made use of three different valid and reliable instruments constructed by the researchers. First, Teachers' Computer Competence Questionnaire (TCCQ) was developed by the researchers to elicit information on extent of competence of teachers. The questionnaire initially has 30 items which were reduced to 20 item after validation, placed beside two scales of Competence (C) and not Competence (NC), in which the respondents were requested to indicate their level of agreement. The instrument was validated with a reliability coefficient index of .74.

Student Computer Competence Questionnaire (SCCQ). This instrument initially has 25 items presented beside two response format scale of Competent =C and Not Competent =NT. the scale has 21 items after validation with reliability coefficient index of .83. While Computer Studies Achievement Test (CSAT), initially had 40 items, developed to elicited information on student achievement in Computer Studies with four option of A, B, C and D. The face validity of the instrument was established by three (3) experts in educational evaluation and other two (2) specialist in item construction in faculty of education. The reliability of the achievement test was determined using Kuder Richardson (KR-20) formula that yielded a coefficient index of 0.76 for JSS1, 0.82 for JSS 2 and 0.78 for JSS 3. Descriptive statistics frequency and percentage was used to indicate the number of responses to each item, while multiple regression was used to predict student achievement in Computer Studies.

RESULT AND DISCUSSIONS

Table 1: Profile of Computer Studies Teachers by Educational Qualification

Teacher Qualification	Frequency	Percentages (%)
NCE	8	12.7
B.SC	28	44.4
B.A	8	12.7
B.ED	12	19.0
HND	7	11.1
TOTAL	63	100.0

Table 1 reveals the educational qualification of the teachers. The result shows that 28(44.4%) of the respondent have Bachelor Degree in Science (B.sc), 12(19.0%) holds Bachelor Degree in Education (B.ed), those with Bachelor in Arts (B.A) and National Certificate of Education (NCE) have 8(12.7%) while 7(11.1%) have Higher National Diploma (HND). Furthermore, majority of the teachers used 43(68%) do not have any form of teaching qualification whereas only 20(32%) of the teachers do.

The result of the study on table 1 shows to a great extent that teachers who teaches Computer Studies are not professionally qualified. Teacher qualification is one of the attributes of a teacher that plays a significant role in the teaching and learning process, thus teaching of any subject at the upper basic level of education requires those who have obtained certificate/training at the tertiary institution. The findings of this study lends credence to earlier findings of Edu and Kalu (2001) in Abe (2014) who found that professionally qualified teachers are those who have academic training in a subject that gave knowledge, skills, technique different from the general education. The study further reveals that majority of the teachers were trained graduates with minimal impact in respect to their professional qualification. Tella (2008) asserts that a teacher who doesn't have both the academic and professional teaching qualification would certainly have negative influence on the teaching-learning of his/her subject. Olatoye (2006) pointed out that the quality of teachers is an important variable in effective teaching and learning. Meaning that when a teacher is well trained, it will influence his qualities of teaching and will help to build the cognitive ability of the child improve skills development. Similarly, if the teachers to handle the courses are not well trained to interpret the curriculum, they will hardly be able to pass the appropriate knowledge to the students.

Table 2: Teacher Competence in the use of Computer

S/N	How Competent are you in the following;	Competent	Not Competent
1	Using instructional based chat to teach student	54(86%)	9(14%)
2	Using power point slides during lesson presentation	53(85%)	10(15%)
3	Accessing the internet for instructional aid/materials	49(78%)	14(22%)
4	Teaching the students using interactive board	25(40%)	38(60%)
5	Use of interactive board software to prepare my course material	20(32%)	34(68%)
6	Using Ms word to create diagrams	20(31%)	43(69%)
7	Use of Internet to search for information on the related topics in preparation for teaching	48(76%)	15(24%)
8	Creating table using Ms word	33(53%)	30(47%)
9	Creating tables using Ms Excel	49(78%)	14(22%)
10	Creation graphs using Ms power point	44(69%)	19(31%)
11	Performing simple calculation in excel	32(50%)	31(50%)
12	Using Internet for enhancing my personal knowledge	37(59%)	26(41%)
13	Preparing teacher presentation using Microsoft power point slides	41(65%)	22(35%)
14	Browsing for educational materials via search engines	52(83%)	11(17%)
15	Installation of application software on a computer	32(51%)	31(49%)
16	Editing documents on Microsoft word	52(81%)	11(19%)
17	Use e-mail to communicate with colleagues	51(82%)	12(18%)
18	Using social network like Facebook to communicate with colleagues	39(62%)	24(38%)
19	Downloading documents from the Internet using URL like Mozilla and internet explorer	52(83%)	11(17%)
20	Setting up complete electronic equipment for instructional delivery such as multimedia projectors	45(71%)	18(29%)

Table 2 reveals the response of teachers on their competence in use of computers. A good number representation 86% of the teacher were competent in using instructional based chat to teach student (item 1), 85% use power point slides during lesson presentation (item 2), 83% of the teachers were competent in using the computer for browsing educational materials via search engine (item 14) and downloading documents from the Internet using URL like Mozilla and internet explorer (item 19). The table shows that 82% of the teachers are competent in the use of e-mail to communicate with colleagues (item 18) while 81% of the respondents are competent in editing documents on Microsoft word (item 16). Furthermore, more than 70% of the teachers also admitted having competence in the following, accessing the internet for instructional aid/materials (item 3), creating tables using Ms Excel (item 9), use of Internet to search for information on the related topics in preparation for teaching (item 7) and Setting up complete electronic equipment for instructional delivery such as multimedia projectors (item 20).

Result also reveals that more than 60% of the teachers have competence in creation graphs using Ms power point (item 10), Preparing teacher presentation using Microsoft power point slides (item 13), and using social network like Facebook to communicate with colleagues (item 17). Also, over 50 percent of the teachers acknowledged having competence in using Internet for enhancing their personal knowledge (item 12), creating table using Ms Word (item 8), Installation of application software on a computer (item 15) and performing simple calculation in excel (item 11). Nevertheless, the result also reveals that over 60 percent of the teachers are incompetent in use of interactive board software to prepare their course material (item 5), teaching the students using interactive board (item 4), and using Ms Word to create diagrams (item 6).

Discussion of Finding

Result on table 2 shows teacher responses on their level of competence with use of computer. The study reveals that a good proportion of the teachers have competence in basic computer operation. This result is in line with the study of Sefyrin (2005) who revealed that such level of competence could be as a result of the interest and confident that is developed by the teachers. In collaboration with this study, Yusuf (2005) affirmed that teachers' competency reveals their efficiency in use of computer programs. Hence, it has a significant factor in determining student achievement. Adeosun and Maduekwe (2008) added that most of the secondary school teachers possess lower level of skills in the use of computers, like hardware with little understanding of basic terminological concepts, it limit their level of effectiveness during teaching and learning process. Finally, Adegoke (2003) emphasised that teachers' incompetency and lack of confidence in the use of computer greatly influenced the implementation of Computer Studies.

Table 3: Level of Student Competence in Computer

S/N	Student Level of Competence in use of computers	Competent	Not Competent
1	Using the computer for school assignment	1140(53.6%)	987(46.4%)
2	Using the computer application to type documents on Ms word at anytime	1058(49.7%)	1069(50.3%)
3	Downloading of audio/video files with computer system	924(43.4%)	1201(56.5%)
4	Using Ms word to create diagrams	862(40.5%)	1265(59.5%)
5	Use of graphic for birthday cards, weeding cards etc	894(42.0%)	1233(58.0%)
6	Installation of software	741(34.8%)	1386(65.2%)
7	Design of posters and certificates with Corel draw	739(34.8%)	1386(65.2%)
8	Prepare slides using Microsoft power point	946(44.5%)	1181(55.5%)

9	Creating tables using Ms Excel	939(44.1%)	1188(55.9%)
10	Performing simple calculation in excel	971(45.7%)	1156(54.3%)
11	Creation of animations in Ms power point	948(44.6%)	1179(55.4%)
12	Browsing for learning materials via search engines such as explorer, Mozilla	1060(49.8%)	1067(50.2%)
13	Installation of application software on a computer	1053(49.5%)	1074(50.5%)
14	Editing documents on Microsoft word	1179(55.4%)	948(44.6%)
15	Use e-mail to communicate with friends	797(37.5%)	1330(62.5%)
16	Using social network like Facebook to communicate with friends	1602(75.3%)	525(24.7%)

Table 3 reveals the level of competence [entrepreneurial] skills that students have learnt in schools with which they could be self-employed. The result shows that out of the sixteen items, students are able to develop their level of competence in only three of the items. A good proportion of the students display competence in use of social network like Facebook to communicate with friends (item 16), editing documents on Microsoft word (item 14) and using the computer for school assignment (item 1). The result also reveals that a great number of the students 65.2% were not competent with the installation of software's (item 6), designing of posters/certificates with Corel draw (item 7), and use of e-mail to communicate with friends (item 15).

Thus, the study shows that over 50 percent of the students are not competence in using Ms word to create diagrams (item 4), Use of graphic for birthday cards, wedding cards etc (item 5), downloading of audio/video files with computer system (item 3), creating tables using Ms Excel (item 9), preparing slides using Microsoft power point (item 8), creating of animation in Ms power point (item 11), performing simple calculation in excel (item 10), installation of application software on a computer (item 13), using the computer application to type documents on Ms Word at any time (item 2), browsing for learning materials via search engines such as explorer and Mozilla (item 12).

Result of data analysis tested from the table 3 reveals that students' are more competent in use of basic resources in learning of computers studies. The study shows that majority of the students' only exhibit competence in the use of social network like Facebook to communicate with friends, editing documents on Microsoft word and in using the computer for school assignment. With this result, it can be deduced that student were only exposed to the basics of the knowledge of computer and not in it advance operation. That can be seen on table 3, with their inability to install soft wares, design posters and certificates with Corel draw, and the use of e-mails to communicate with friends among others. Nevertheless, there is a strong possibility that students' low level of skills acquisition resulted from lack of competent teachers with knowledge to motivate the student in use of computers in schools (Yusuf, 2005).

Also, result derived from the study indicate that students were not taught sufficient practical skills, to allow them acquire computer skills for entrepreneurial as spelt in the curriculum. Further observation and analysis showed that students learnt computers theoretically, with less practical approach to develop skills in graphic design of cards, downloading of both audio and videos, use of Microsoft word, use of internet, blogging, etc.

Table 4: indicates the summary of data analysis on the test of relationship between the three independent variables. The results of the table reveals that there is an inter correlation between students competent and achievement of students. Pointing out that, student's high achievement should be traced beyond their competence. Using the regression analysis, it is shown on table 5 that, the three predictor variables when taken together allow reliable prediction of the criterion variable (achievement in Computer Studies). Also, reveals that the value of the coefficient of Multiple Regression is (R) =.291*, Multiple Regression Square

$(R^2) = .085$ and the adjusted squared multiple correlation (R_{adj})=.080. The model has a positive and high correlation with a variance of .085. This implies that 8.5% of the total variation of achievement in Computer Studies is attributable to the combined contribution of the predictor variables built into the regression model.

The result further shows that $F(3, 2110) = 19.464$, $p < 0.05$ jointly allow for a reliable prediction of student achievement in computer studies. The result also reveals that the standard F –test that examined the relationship between the predictor variables and the criterion variables are linear and significant ($p < .05$). Thus the model predicted significantly the achievement of upper basic level students in Computer Studies.

Table 4: Correlation Matrix of Variables

Variable	ST_A	TQ	TC	SC
Student Achievement	1.000			
Teacher Qualification	.006	1.000		
Teacher Competence	-.041	-.027	1.000	
Student Competence	-.127	.006	-.022	1.000
Mean	15.54	2.72	2.31	31.69
SD	3.480	1.226	.691	5.558

ST.A= Student Achievement, TQ=Teacher Qualification, TC=Teacher Competence, SC=Student Competence.

* = Significant at $p < 0.05$

Table 5: Model Summary and ANOVA on Factors Predicting Students' Achievement in Computer Studies at Upper Basic Level of Education

R	= .291 ^a				
R Square	= .085				
Adjusted R Square	= .080				
Std. Error of the Estimate	= 3.338				
Model	Sum of square	Df	Mean square	F	Sig.
Regression	2168.227	3	216.823	19.464	.000 ^a
Residual	23426.445	2110	11.140		
Total	25594.672	2113			

a. Predictors: (Constant), Teacher Qualification, Teacher Competence and Student Competence.

* = significant at $p < 0.05$

b. Dependent Variable: Achievement in Computer Studies.

Table 6: Summary of Relative Contribution of Factors Influencing Student Academic Achievement in Computer Studies at the Upper Basic Level of Education in Cross River State

Model	Unstandardized Coefficients		Standardized Coefficients		Correlations			Collinearity Statistics	
	Std. Error		Beta	T	Sig.	Zer-order Partial	Part	Tolerance	VIF
	B	Error							
(Constant)	16.942	1.050		19.405	.000				
Teacher Qualification	.002	.060	.001	.035	.972	.006	.001	.001	.980 1.020
Teacher Competence	-.208	.105	-.041	-1.979	.048	-.041	-.043	-.041	.997 1.001
Student Competence	-.083	.013	-.133	-6.372	.000*	-.127	-.138	-.133	.994 1.006

a. Dependent Variable: Student Achievement

Table 6: describes the Unstandardized Coefficients (B) and Standardized Coefficient (beta weight), t value, p values suggest that the predictor variables is having a large impact on the criterion variable, while the zero order, partial and part indices, the tolerance and VIF factors are the measure between the predictors variables and can vary between 1 and 0. The closer to zero the stronger the relationship of the predictor variable. Also, V/F is an alternative measure of collinearity (reciprocal of tolerance) in which a large value indicates a strong relationship between predictor variables. The tolerance statistics presented in the coefficient table 6 indicated that all the predictor variables positively correlated among themselves and was tolerated in the model with a statistic range of .7 to .9. Table 6 also shows that the Beta (β) weights specified that only two out of the three predictor variables contributed significantly to the prediction of students' achievement in Computer Studies. The two variables that contributed to the model are;

Students Competence [$\beta = -.133$, $t_{(2110)} = -6.372$, $p < .05$],

Teacher Competence [$\beta = -.041$, $t_{(20110)} = -1.979$, $p < .05$],

The observed beta value of the analysis indicate that for every one unit changes in student competence and teacher competence. There is a corresponding increase of .041 and .133 in student Computer Studies achievement. Other variable such as teacher qualification, did not contribute statistically and significantly to the variance in the student achievement in computer studies, which implies that it is not influential in predicting student achievement in computer studies.

Student competence as one of the most influential IVs that predicted the DV students' academic achievement in computer studies. It implies that if students are equipped with required knowledge of computer, they are likely to do well in Computer Studies. This study collaborated the study of Adeyemi (2000), Kimani, Kara and Njagi (2013), who found out that teachers teaching qualification has no significant relationship with student achievement in various studies examined. Also the finding suggested that students' performance in computer studies could be as a result of other factors than teacher qualification (Harris & Sass, 2008, Aaronson, Barrow & Sander, 2007). In order word, the quality of materials provided in most of the schools will determined the level of students' achievement in schools. The findings suggested that students' performance in Computer Studies could be as a result of other factors than teacher qualification (Harris & Sass, 2008, Aaronson et al., 2007).

CONCLUSION

This study explored teachers' characteristics and student competence as predictors of student's achievement in computer studies in Cross River state. The finding of this study revealed that; the proportion of qualified computer studies teachers is not enough to meet up with the demand of schools. Further evidence yielded by the study reveals that majority of the students have not learnt sufficient practical to allow competent and knowledge acquisition. Hence the government is expected to motivate the teachers and schools by making sure that teachers are constantly train with new knowledge of computer in order to achieve her stated objectives.

REFERENCES

- Aaronson, D., Barrow, L., & Sander, W. (2007). Teachers and Student Achievement in the Chicago Public High Schools. *Journal of Labour Economics*, 25(1), 95-135.
- Abe, T. O., & Adu E. I. (2013). Influence of Qualification on Development and Assessment of Computer Programmed Instructional Package on Energy Concept in Upper Basic Technology in Ekiti State. *Journal of Science and Technolpgy*, 3(6), 611-618.

- Abe, T. (2014). The effect of teachers' qualifications on students' performance in mathematics. *Sky Journal of Educational Research*, 2(1), 10–14.
- Adegoke, K. A. (2003). Curriculum Theorizing for Competency. An Inaugural Lecture, University of Lagos, Nigeria.
- Adeosun, A. O., & Maduekwe. A. N. (2008). Academic Motivation and e-learning in teacher education: an ESL contextual analysis. Proceedings of the 10th Annual Conference on www Applications, Cape Town, South Africa
- Aremu, A. O., & Sokan, B. O. (2003). A Multi-causal evaluation of academic performance of Nigerian Learner, Issues and implications for National development. In Ayodele-Bamisaiye, O, I. A, Nwazuoke, & A. Oladiran (Eds), Education this millennium (pp. 365-375). Ibadan: Macmillan.
- Aremu, A. O. (2000). Impact of home, school, and government on primary school pupil's academic performance. *The Exceptional Child*, 5(1), 106-110.
- Adefunke, T. O., Ayodele T. S., & Olufemi, A. E. (2014). An Assessment of Implementation of National Computer Education Curriculum in Nigerian Primary Schools: The 2014 WEI International Academic Conference Proceedings New Orleans, USA.
- Arikpo, O. U. (2017). Evaluation of Computer Studies Curriculum Implementation at the Upper Basic level of Education in Cross River State, Nigeria. Unpublished Ph.D thesis of Institute of Education, University of Ibadan.
- Akinsolu, A. O (2010). Teachers and Students' Academic Performance in Nigerian Secondary Schools: Implications for Planning. *Florida Journal of Educational Administration & Policy*, 3(2).
- Bhasker, B. (2002). Educating the educators: Self inquiries for parents and teachers. *Journal of computer assisted learning* 26(3), 175-189.
- Effandi, Z., & Zanaton I. (2007). Promoting Cooperative Learning in Science and Mathematics Education: A Malaysian Perspective. *Eurasia Journal of Mathematics, Science & Technology Education*, 3(1), 35-39.
- Edu, D. O., Edu, G. O., & Kalu, I. M. (2012). Influence of Academic qualification on gender on teachers' perception of difficult concept in primary science in Ikom, educational Zone of Cross River. *Greene & Journal of Educational Research*, 2(2).
- Federal Republic of Nigeria, (2004). National Policy on Education (Revised), NERDC Press, Lagos
- Goldhaber, D. (2003). The mystery of good teaching: Surveying the evidence on student achievement. The Education Next Spring 2002 fine article <http://www.findarticles.com>.
- Harris, D. N., & Sass T. R. (2008). Teacher Training, Teacher Quality and Student Achievement." CALDER Working Paper 3. Washington, D.C.: The Urban Institute.
- Kathleen, M. (2010). Learning ICT skills Incidentally Geelong in Victoria, Australia.
- Knezek, G., & Christensen, R. (2002). Impact of New Information Technologies on Teachers and Students. *Education and Information Technologies*, 7(4), 369–376.
- Ndukwe P. N. (2002). School and Teacher factors as determinants of classroom materials resources Utilization in in pre-primary school in Lagos state. Unpublished Ph.D. Thesis, University of Ibadan, Ibadan, Nigeria
- Nigerian Education Research Development Council (2007). The a-year Basic education curriculum at a glance. Lagos: NERDC Press.
- Olatoye, R. N. (2006). Science Teacher Effectiveness as a predictor of students' performance in senior secondary school certificate exams. *Journal of Educational Studies*, 6, 104-110.

- Passos A. (2007). Teachers competence and its effect on pupil performance in Mozambique and other SACMEQ countries- preliminary result presentation to SACMEQ Assembly of the ministers international institute for educational planning –UNESCO, Paris.
- Sefyrin, J. (2005). Understandings of gender and competence in ICT. *Paper presented at 6th International Women into Computing Conference*. University of Greenwich. Retrieved from <http://www.miun.se/upload/Institutioner/ITM/IKS/SI/publikatione>.
- Tella A. (2008). Teacher variables as predictors of academic achievement of primary schools mathematics. *International journal of elementary education* 1(1), 16-33.
- Tekos, G., & Solomonidou, C. (2009). Constructivist learning and teaching of optics concepts using ICT tools in Greek primary school: A pilot study. *Journal of Science Education and Technology*, 18(5), 415–428.
- United Nations (2005). Millennium Development Goals Report. New York: United Nations Department of Public Information.
- [United Nations \(2010\). Millennium Development Goals Report \(2010\)](#). www.en\person with
- Universal Basic Education Commission (2008). Training manual on the 9-year basic education curriculum. Abuja: UBEC.
- Westera W. (2001). Competence in Education: a confusion of tongues. *In journal of Curriculum Studies*, 33(1), (99 75-88).
- Yusuf, M. O. (2005). Information and communication technology for education: Analysing the Nigeria policy for information technology. *International Education Journal*, 6(3), 316-321.
- Yusuf, M. O., & Afolabi, A. O. (2010). Effects of Computer Assisted Instruction (CAI) on Secondary School Students' Performance in Biology. The Turk. *Online Journal of Educational Technology*, 9(1), 62-69.