Assessment of Senior Secondary School Student's Attitudes toward Information and Communication Technologies in Iwo Local Government Area of Osun State, Nigeria

SANNI, Kamorudeen Taiwo Ph. D[1], ARANSI, Waliyi Olayemi[2], ADEWOLE, Folasade Omowumi[3]

[1]Faculty of Education, Federal University Oye-Ekiti, Ekiti State, Nigeria
[2]Department of Adult Education, Faculty of Education, University of Ibadan, Ibadan, Nigeria

Email: [1]Info2sannikt@gmail.com, [2]omoaransi@yahoo.com, [3]Sadeomowumi1@gmail.com

Abstract: *The study examined the attitudes of senior secondary school students toward Information and Communication Technologies in Iwo Local Government Area of Osun State. Three specific objectives and research questions are enumerated. Descriptive survey research design was employed. Simple random sampling technique was employed to select the sample of three-hundred (300) from three public schools in Iwo metropolis. The questionnaire was used as research instrument which was validated and undergone reliability test. Descriptive and inferential statistics were used for data analysis. The empirical outcomes revealed that secondary school students involved in the research exhibited positive attitude towards utilisation and application of Information and Communication Technology platforms. Also, there was no significant different in the students' attitude towards Information and Communication Technology on the basis of gender. The findings further revealed that there was significant different in the students' attitude towards application and utilisation of ICT on the basis of parental educational levels. The study concluded that secondary school students engaged in the research work had good attitude towards Information and Communication Technology most especially for academic oriented exercise. In addition, parental educational status enhance students' attitude toward the access to ICT but no significant difference was found on the basis of the gender traits of the respondents. Recommendations including intensify ICT education, organization of seminars, conferences, workshops and orientation programs based on ICT and provision of incentive for potential and existing ICT beneficiaries among other are suggested.*

Keywords: Assessment, Attitude, ICT, Secondary School

INTRODUCTION

The world of today is characterized by revolutionary advances powered by Information and Communication Technology (ICT). The world is being reduced to a global village through the use of information and communication technology thus, ICT promotes national development and better relationship with other nations. ICT refers to the electronic and communication devices associated with human interactive materials that enable users to employ them for a whole range of teaching - learning process. Information Communication Technology is the fusion of two technologies: They are Information Technology (IT) and Communication Technology (CT). ICT embraces all technologies for manipulative communication of information and also encompasses any medium used to record information such as: radio, television and technology for communication through voice and sound or images using microphone, camera, loudspeaker, telephone/ mobile phones (Osu, Udosen, and Akpan, 2010). Information and Communication Technologies (ICTs) are indispensable and have been accepted as part of the contemporary world, especially in the industrialized societies to the extent of giving a new phase to the education system in terms of pedagogical approach (Ololube, 2006).

According to Fari (2010), Information and Communication Technology facilities are described as all the facilities available for the identification, generation, processing, storage, packaging, preservation, conservation and transfer of information, regardless of time and distance constraints. In other words, Information and Communication Technologies are information handling tools used for producing, storing, processing, distributing and exchanging of information. In order to advance user education, the Multimedia Educational Resource Learning Online Teaching (MERLOT) adopted the use of information and communication technology (ICT) for information literacy program. The program was aimed at providing a systematic approach to incorporating ICT literacy into education to ensure that students become ICT literate at the end of the program.

It is clear that ICT is a world of its own, it has various diversified aspects. The aspect relevant to this study is ICT-Driven Instructional aid basically, the "Computer Assisted mode of Instruction" (CAI). According to Nwike and Chukwudum (2011), Computer Assisted Instruction (CAI) is one of the products of computer technology and it proves to be an effective method of instruction delivery. It therefore, implies that ICT could help teachers to be more effective in work-life and resourceful in content management. Okoro and Etukudo, (2001) state that in applying the CAI mode of instruction, the computer is fed in sequential manner with what to teach, the steps to be followed, how to evaluate success, how and when other classroom activities are to be carried out. Hence, this will

make teaching tasks to become less cumbersome and productive thereby improving students' academic performance. Basically, the utilization of ICT- Driven instructional aids through CAI is meant to serve as an orientation stimulus to support the teachers teaching strategies and not to replace them. A paradigm shift from the traditional "chalk and talk" form of teaching to the use of ICT through CAI could make teaching-learning process more real and practical, thereby resulting to better students' academic performances.

The benefits of ICT as an important tool in teaching and learning of subjects could enable them understand and learn the subject better. According to Wheeler, (2001) little attention has been given to the improvement of teaching and learning of teaching subjects in recent decades. He further stated that passive learning based on the traditional form of "chalk and talk" has widely characterized the 20th century style of teaching all subjects in senior secondary schools in the Maldives in Asia. In like manner, Jegede (2002) noted that society is too slow in its approach to take-up ICT usage despite its enormous advantages. This in-turn could pose a threat to development of a nation like Nigeria, having education as the instrument "par excellence" for effecting national development. Therefore, if Nigeria will meet up with the global technological advancement through the use of ICT, then, education must be given utmost priority and teacher education must be its guiding principle since no nation can rise above the standard of her teachers (FRN, 2004). The Federal Ministry of Education (2010) has mandated the integration of ICT in education for speedy transformation of teaching, learning and administration of education as a positive step in the right direction.

Attitude is a predisposition or a tendency to respond positively or negatively towards a certain idea, object, person or situation. Attitude influence an individual's choice of action, and responses to challenges, incentives, rewards and utilization of ICT gadgets or facilities. Sánchez and Alemán (2011) suggested that ICT can assist in transforming a teaching environment into a learner-centred one in a higher educational institute setting, and to achieve successful integration of ICT in class, it requires efforts from teachers, students and school administrators. The successful use of ICT in teaching and learning will depend largely on the attitudes of the teachers and students towards the use of ICT. Yusuf, (2005) acknowledged that students' attitudes towards using ICT are generally favourable, and there are a multitude of factors that support or hinder their usage. Students' perceived ease of use and perceived usefulness were found to be significant determinants of attitudes towards the use of ICT. When students view ICT as useful and easy to use, their engagement with ICT would be high.

The differences between male and female students' attitudes toward ICT could be a sign that they differ in their motivations and interests in considering the utility of computers, as well as the role computers play in their lives (Volman et al., 2005). Schumacher and Morahan (2001) argued that the utility and perceived usefulness of the different aspects of technology lay at the heart of much of the gendered nature of the data: what is useful for male and what is useful for female were often seen as very different. Also Ferrer, Belvís and Pàmies, (2011) argue that boys and girls in public schools make different uses of ICT and also apply different value to the relationship between ICT knowledge and their subsequent incorporation into the labor market, according to careers of varying technological levels. Based on the results of this studies, it could be suggested that females take a more pragmatic stance toward computer use, meaning that they are likely to develop positive attitudes toward forms of computer use – attitudes towards computers in education in this case – that they deem to be useful. Abbiss (2008) described females as "task-oriented users" who focus on utilitarian functions of computers and on the end product. In contrast, males are described as "power users" who are machine oriented and for whom the computer is a toy to be manipulated for its own sake. Barbara et al (2016) argued that educated parents and their wards who chose to use iPad had more positive attitudes towards tablet use in teaching and learning, and perceived less negative effects of ICT use than students and parents who have not been using iPad. But, parents whose children have been using the iPad in classroom for two years did not differ in their attitudes from parents whose children have not been using the iPad. It is possible that parents of future iPad users have high expectations towards tablet use in education. It is on this note that made Courtois et al. (2014) concluded that when introducing innovative technologies (ICT) in education, implementation should be gradual, and expectations should be toned down to avoid loss of enthusiasm for ICT in parents.

Statement of the Problems

Obviously, there is a rapid increase in the implementation of ICT tools in so many sectors of the nation and globe. This rapid increase of computer (ICT) usage points to the needs of improving the literacy of students especially in their secondary school education level. Problems and challenges faced by secondary education without the help of the tools of ICT are therefore numerous. Prior to the present century where the advance of Information communication Technologies has taking the lead in reducing the stress of human beings especially students, people suffer in educational researches and productivity. Meanwhile, one could have just logged into an information search website (www.google.com) to update him or herself with whatsoever research information he or she seeks if one is ICT equipped. Our students are faced with High stress and cost of Information search and retrieval in the offline library system (OLS) where no computer exists. Consequently, the time it will take a secondary school researcher to conduct his or her research in the offline mode tends to a period of 1 to 2 years.

The pattern of teaching and learning process today is expected to shift from the conventional method to a more dynamic and flexible one, which is learner-centred (Ezekoka and Okoli, 2012). Adomi and Kpangban, (2010) reported that 75 percent of teachers in Nigerian secondary

schools have little or no experience regarding ICT in education. Furthermore, the processing of student's results manually has been the major challenge faced by some teachers of our secondary schools which cumulate to poor students' result management. A lot of files are also being misplaced through the manual record system used in our secondary schools instead of the Database Management System (DBMS) which has the ability to store and retrieve data in an automated form with access authentication and low redundancy as well as functionality. These summed up to the reason why the researchers embarked on the "Assessment of Senior Secondary School Student's Attitudes toward Information and Communication Technologies in Iwo " in order to expose and justify the students attitudes toward ICT in Osun state.

Objective of the Study

The broad objective of the study is to assess senior secondary school students' attitude towards Information and Communication Technologies. While, specific objectives are to;

i. evaluate the attitude of senior secondary school students toward information and communication technologies in Iwo local government;

ii. determine the extent to which gender influence the attitude of senior secondary school students toward information and communication technologies (ICT); and

iii. examine the extent to which parents' educational status influence the attitude of senior secondary school students toward information and communication technologies.

Research Questions

The following questions are enumerated to guide the study.

i. What is the attitude of senior secondary school students towards information and communication technologies (ICT) in Iwo local government area?

ii. Is there any significant difference on students' attitude toward information and communication technologies (ICT) among secondary school students in Iwo based on gender?

iii. Is there any significant difference on students' attitude toward information and communication technologies (ICT) among secondary school students in Iwo based on parent's educational status.

METHODODLGY

Research Design

The study employed the descriptive survey research design. This design is generally conceived as one in which a group of people or items is studied by collecting and analysing data from only a few people or items considered to be representative of the entire group (Nworgu, 2006). However, in some surveys the entire population is studied such surveys is called census as distinct from sample surveys in which a sample of the population is studied which was exploited in this study. Besides, the design is considered appropriate for this research work, because the research student used the obtained data to describe the students' attitude towards the adoption and utilisation of Information and Communication Technology (ICT) with respect to academic exercises in senior secondary schools. It didn't involve manipulation of variables in the study. It is therefore, after the fact study. It neither adds to nor subtracts from the existing fact.

Population

Population in research is used in a more general sense to include all members or elements (be living things or non-living things) of a well-defined group. As a result of this, all public senior secondary school students in Iwo Local Government Area of Osun-state during 2018/2019 academic session formed the target population for this study.

Sample and Sampling Technique

Three public schools were purposively sample within Iwo metropolis. Besides, simple random sampling technique was employed to select the sample of three-hundred (300) respondents from Grade 11 (Senior Secondary School II). This is because, simple random sampling technique afford each element of the population equal and independent chance of being included in the sample. The sampled schools and number of respondents picked are as follows;

S/N	Name of the School	Sample
1.	Methodist High School	99
2.	Iwo High School	102
3.	Saint Mary Secondary School	99
Total		**300**

Fieldwork, (2109).

Instrumentation

The research instrument for this study was a structured questionnaire. The questionnaire was framed and designed to reflect the content of the research questions and divided into sections in line with variables planned for the study. The questionnaire was in two sections (A and B). Section A comprised the demographic characteristics of the

respondents, while Section B contained information of the variables of interest to the study. The responses was planned on four Likert-scale rating range from Strongly Agree, (SA), Agree (A), Disagree (D) and strongly disagree (SD)=4 . This is because, Likert-scale rating is reliable and valid as it enables participants to indicate the extent of agreement or disagreement.

Validation of Research Instrument

Validity is the ability of a research instrument to measure what is designed to measure. The greater the degree of validity of the instrument, the higher the confidence of the researchers about the result obtained. A research can only be meaningful and dependable only when a valid instrument is properly structured and comprehensive items are constructed without leaving any room for ambiguity. However, in order to effectively ensure the validity of the instruments used for this study, the instruments were subjected to content validity measurement which involves face validity and predictive validity. On face and content validity, the items are presented in simple language for easy understanding by the respondents and are also logically and systematically arranged in line with the research questions enumerated to answer in chapter one. The researchers also ensured the validity of the instruments by making sure that the contents of the instruments are consistent with both the objectives and research questions of the study. In addition, a pilot study was carried out using a population of the same characteristics, which was not a part of the actual study. This was done to test the ambiguities in the instrument, so as to make interpretation more explicit during the actual findings from the respondents for the main study.

Reliability of the Instrument

The reliability of a research instrument concerns the extent to which the instrument yields the same results on repeated trials. Although, unreliability is always present to a certain extent, there will generally be a good deal of consistency in

the results of a quality instrument gathered at different times. The tendency towards consistency found in repeated measurements is referred to as reliability. The instrument was trial-tested among fifty (50) students were selected from two public schools in Iwo Local Government Areas of Osun State which are not part of the respondents used for the study. The internal consistency reliability coefficient was obtained with the aid of Cronbach Alpha reliability technique. The justification for using Cronbach Alpha reliability technique was based on the fact that the items on research instrument, that is questionnaire have no right or wrong answer and it allowed respondents to rate the degree or extent to which they agree or disagree with a statement on a particular scale. However, the Cronbach Alpha reliability tests produced 0.76. The outcome posited that the instrument was suitable, appropriate, adequate and reliable for the research work.

Method of Data Administration

The data were collected through quantitative instrument that is questionnaire. The questionnaire was administered to the respondents by the researchers. For easy understanding and accurate responses to the items on the questionnaire by the respondents, guidelines concerning the completion of the questionnaire was explained and presented to the respondents. They respondents were required to tick the appropriate responses that best represent their attitude towards Information and Communication Technology (ICT).

Method of Data Analysis

The data obtained (gathered) from the respondents for the study was coded, scored, and analyzed using both descriptive and inferential statistics. Descriptive statistics vis-à-vis simple percentage was used to answer research question number one while inferential statistics-t-test was to answer question number two three.

RESULTS

Analysis Based on Research Questions

Research Question I: What is the attitude of senior secondary school students towards Information and Communication Technologies (ICT) in Iwo local government area?

Table 1: Descriptive Statistics Showing the attitude of senior secondary school students towards information and communication technologies (ICT).

Items	SD	D	A	SA
Computer do not scare me at all	34(11.3%)	33(11%)	116(38.7%)	117(39%)
Computer make me feel uncomfortable	182(60.7%)	100(33.3%)	10(3.3%)	8(2.7%)
I am glad there are more computers these days	35(11.7%)	30(10%)	125(41.7%)	110(36.7%)
I do not like talking with others about computers	117(39%)	116(38.7%)	34(11.3%)	33(11%)
Using computer is enjoyable	33(11%)	34(11.3%)	117(39%)	116(38.7%)

I dislike using computers for study	155(51.7%)	111(37%)	20(6.7%)	14(4.6%)
Computer save time and effort	7(2.3%)	20(6.7%)	101(33.7%)	172(57.3%)
Computer must be used in all subjects	20(6.7%)	14(4.6%)	111(37%)	155(51.7%)
School would be better without the use of computer	111(37%)	155(51.7%)	14(4.6%)	20(6.7%)
Learning about computer is a waste of time	182(60.7%)	100(33.3%)	10(3.3%)	8(2.7%)
Computers would motivate students to do more study	18(6%)	17(5.7%)	135(45%)	130(43.3%)
Computers are a fast and efficient means of getting information	10(3.3%)	8(2.7%)	100(33.3%)	182(60.7%)
I do not think I would ever come across computers in the classroom	135(45%)	130(43.3%)	17(5.7%)	18(6%)
Computers can enhance students learning	22(7.4%)	10(3.3%)	102(34%)	166(55.3%)
Computers do more harm than good	102(34%)	166(55.3%)	10(3.3%)	22(7.4%)
I would rather do things by hand than with a computer	155(51.7%)	111(37%)	14(4.6%)	20(6.7%)
If I had the money, I would buy a computer	25(8.3%)	30(10%)	105(35%)	140(46.7%)
I would avoid computers as much as possible.	125(41.7%)	110(36.7%)	35(11.7%)	30(10%)
I would like to learn more about computers.	25(8.3%)	30(10%)	105(35%)	140(46.7%)
I have no intention to use computers in the near future	117(39%)	116(38.7%)	34(11.3%)	33(11%)

Table 1 contained information on the respondents' perspective towards their attitude to information and communication technologies (ICT). 117(39%) and 116(38.7%) strongly agree and agree that computer do not scare them at all, while 34(11.3%) and 33(11%) strongly disagree and disagree with the statement. This indicated that majority of the participants didn't exhibit phobia towards utilisation and application of Information and Communication Technology.

182(60.7%) and 100(33.3%) of the total participants strongly disagree and disagree respectively that computer make them feel uncomfortable most especially for academic exercises, and the remaining 10(3.3%) and 8(2.7%) of them agree and strongly agree to the notion. 235(78.4%) of the participants were of the view that they were so glad due to the fact that there are more more computers these days as compared with previous days.

Also, 117(39%) strongly disagreed that they do not like talking with others about computers, 116(38.7%) disagree, 34(11.3%) agree while 33(11%) strongly agree with the

statement. 33(11%) and 34(11.3%) of the total participants strongly disagree and disagree respectively that using computer academic task is not enjoyable while 117(39%) and 116(38.7%) of the respondents which is majority agree and strongly agree that application of computer is enjoyable most especially for academic assignment.

In addition, 155(51.7%) strongly disagree that they dislike using computer for study, 111(37%) disagree, 20(6.7%) of them agree while 14(4.6%) of the entire respondents strongly agree. It is deduced that application of computer in the academic related activities save time and effort as 273(91%) supported the statement while 27(9%) held contrary opinion. In the same vein, 20(6.7%) and 14(4.6%) strongly disagree and disagree to the statement that computer must be used in all subjects, while, 111(37%) and 155(51.7%) of the participants agree and strongly agree respectively. 266(88.7%) of the total respondents were of the view that school would not be better without the application and utilisation of computer to the academic and

non-academic related activities of the school, but 34(11.3%) of them held contrary view.

Furthermore, 135(45%) of the participants strongly agree that computer would encourage learners to do more private study, 135(45%) of them supported the motion, while 18(6%) and 17(5.7%) of them strongly disagree and disagrees with the notion respectively. 100(33.3%) and 182(60.7%) supported that computers are a fast and efficient means of getting information among secondary school students, while 10(3.3%) and 8(2.7%) strongly disagree and disagree with the statement. 265(88.3%) of them which is majority said that they hope to come across computers in the classroom while 35(11.7%) had never thought of coming across computers in the classroom. 102(34%)and 166(55.3%) strongly agree and agree that computer can enhance students learning, 22(7.4%) strongly disagree while 10(3.3%) of them disagree with the statement. Majority of the participants that is 268(89.3%) held contrary opinion to the statement that computer do more harms than good, while 32(10.7%) of them supported the statement.

In addition, 155(51.7%) and 111(37%) strongly disagree and disagree that they would rather do things by hand than with a computer, while 14(4.6%) and 20(6.7%) strongly agree and agree with the notion. Even, majority of them that is 245(81.7%) opined that if they had money they would have preferred to purchase a computer mainly for academic related activities. 125(41.7%) and 110(36.7%) of the respondents could not avoid to interact with computer as much as possible while 35(11.7%) and 30(10%) of them strongly agree and agree with the statement. Majority of the respondents that is 245(81.7%) of the participants said that they would like to learn more about computers. Finally, 117(39%) and 116(38.7%) strongly disagree and disagree that they have no intention to use computers in the near future while, 34(11.3%) and 33(11%) of them strongly agree and agree respectively.

Research Question II: Is there any significant difference on the students' attitude toward information and communication technologies (ICT) among secondary school students in Iwo based on gender?

Table 2: T-test outcome on the difference on students' attitude toward Information and communication technologies (ICT) among secondary school students in Iwo based on gender.

Gender	Variable	Number	Mean	S.D	T-Cal	D.F	T-Tab	Remark
Female	Attitude Towards ICT	180	37.192	7.209				
Male		120	35.697	7.916	0.980	298	1.98	Insig.

Two-tailed Test at 5% Level of Significance

Table 2 indicated t-test outcome on the difference on students' attitude toward information and communication technologies (ICT) among secondary school students in Iwo based on students' gender. The empirical outcomes revealed that students' gender is insignificant towards their attitude to ICT at senior secondary school levels. As t-calculated value of 0.980 is less than t-tabulated value of 1.98 at 5% level of significant. Hence, the null hypothesis is upheld.

Research Question III: Is there any significant difference on students' attitude toward information and communication technologies (ICT) among secondary school students in Iwo based on parental educational status?

Table 3: T-test outcome on the difference on students' attitude toward information and communication technologies (ICT) among secondary school students in Iwo based on parental educational status.

Parental Education	Variable	Number	Mean	S.D	T-Cal	D.F	T-Tab	Remark
Literate	Attitude Towards ICT	180	42.658	8.697				
Illiterate		120	36.818	8.520	3.280	298	1.98	Sig.

Two-tailed Test at 5% Level of Significance.

Table 3 indicated t-test outcome on the difference on students' attitude toward information and communication technologies (ICT) among secondary school students in Iwo based on parental educational status. It is revealed that 180(60%) and 120(40%) had literate and illiterate parents respectively. However, there is significant different between the attitude of secondary school students towards ICT based on their parental educational levels, such that students having literate parents exhibited positive towards utilization and application of ICT as having mean score of 42.7 which is slightly higher than their counterpart who had illiterate parents. This is because, the t-calculated value of 3.280 is greater than the t-tabulated value of 1.98 at 5% level of significant.

Discussion of Findings

The empirical findings indicated that secondary school students under consideration had no phobia for computer as principal component of Information and Communication Technology. It is inferred that application of computer as ICT gadget would not make student feel uncomfortable during academic oriented activities. Available of computer in present days had made the participants to be so glad due to unrestricted access they will have to it than previous days. Computer is enjoyable as reiterated by the majority of the participants, this may be in part due to easy access to vital and useful information that is prominent for any academic task at senior secondary school levels. Besides, using computer save students' time and effort during academic related exercises. This is because, different and so many operations can be performed on the computer gadget at the same time with little human effort and time. In the same vein, the participants said that computer must be used in all subjects, and that school would not be better without the application and utilisation of computer to the academic and non-academic related activities of the school. Majority opined that computer would encourage learners to do more private study, as well as a fast and efficient means of getting information among secondary school students. They hope to come across computers in the classroom interaction in order to aid teaching and learning process at the senior secondary schools. Majority of them supported that computer can enhance students learning and do more good than harm to both students and teachers for academic and academic related activities.

In addition, the participants were of the view that they would rather do things with computer than doing it by hand. Even, majority of them said that if they had money they would have preferred to purchase a computer mainly for academic related activities. Majority of the respondents said that they would like to learn more about computers. Also, there is no significant different in the students' attitude towards Information and Communication Technology on the basis of gender. This implies that gender of the students is insignificant to his/her attitude towards employment of ICT platform at senior secondary school levels. This in tandem with the study conducted by Hussein (2007) who found no statistically significant differences between the awareness of male and female students towards ICT and e-learning. The findings further revealed that there is significant different in the students' attitude towards application and utilisation of ICT on the basis of parental educational levels. This is in favour of students with literate parents as there is likelihood for them to make alternative provision for their children at home to compliment the little access make available within the school. The study was in consonance with research work done by Ramírez Arenas and Rondán (2015) in which no statistically significant differences between males and females was reported when adopting an e-learning platform. The study is in contrary to the finding of Nbina, Obomanu and Vikoo (2011) who found that students in

Rivers State University of Education Port Harcourt have poor knowledge of ICT tool and e-learning.

Conclusion

The study concluded that secondary school students engaged in the research work had good attitude towards Information and Communication Technology most especially for academic oriented exercise. In addition, parental educational status enhance students' attitude toward the access to ICT but no significant difference was found on the basis of the gender traits of the respondents.

Recommendations

Based on the empirical outcomes of the study, the following recommendations are suggested.

i. The need to intensify ICT education, especially in Public Secondary Schools should not be overemphasised. Deliberate government policies directed at achieving this is germane.

ii. The government should encourage student's access and utilise ICT tools by subsiding the cost of ICT gadget.

iii. The school management should make adequate provision for all teachers in order to ensure effective utilization of ICT tools in teaching subjects.

iv. The school authority should organise a seminars, conference, workshops and orientation programs which would aim at promoting awareness and encourage utilization of ICT tools among secondary school students and their teachers.

v. Non-Governmental Organizations (NGOs) and community based organizations (CBOs) in conjunction with school management should embark on programmes to educate, awake and re-awake the interest of teachers in order to embrace effective utilization of ICT tools in schools.

References

Abbiss, J. (2008). Rethinking the 'problem' of gender and IT schooling: discourses in literature. Gender and Education, 20, 153-165.

Adomi, E.E. and Kpangban, E. (2010). Library Philosophy and Practice (e-journal). Application of ICTs in Nigerian Secondary Schools: Digital Commons @ University of Nebraska- Lincoln. http:// digital commons.unl.edu/libphilprac/345.

Ezekoka, G.K. and Okoli, A.M. (2012). The Use of Computer in Teaching and Learning in Secondary Schools in Imo State. Journal of Educational Media and Technology, 16(1).

Fari, S. A. (2010) "Information sharing on Teaching and Research in Tertiary Institutions in Katsina State. Samaru Journal of Information studies: 10 (1&2):12-16.

Federal Ministry of Education (2010). National Policy on Information Technologies (ICT) in Education.

Federal Republic of Nigeria (2004). *National Policy on Education (4th Edition),* Lagos: NERDC Press.

Ferrer F., Belvís, E., and Pàmies, J. (2011) Tablet PCs, academic results and educational inequalities. Computers & Education, 56, 280–8

Hussein, S. A. (2007) The effect of teaching mathematics supported by computer in student' attitudes and their achievement in Circle Unit for the second secondary grade in doha, St Josephs University, Beirut, Lebanon: Master Thesis.

Jegede, P. (2008). Attitudinal Characteristics and Teachers Use Level. Issues in Informing Science and Informing Technology, Ile-Ife, Nigeria.

Nbina, J. B., Obomanu, B. J. & Vikoo, B. (2011). Utilization of information and communication technology for quality instruction in River State University of Education, Port Harcourt: An Assessment. *Journal of Emerging Trends in Educational Research and Policy Studies 2*(1),74–80.

Nwike, M.C. and Chukwudum, E.O. (2011). Effect of Computer Assisted Instruction (CAI) on Students" Achievement in Secondary School Agricultural Science. Journal of Educational Media and Technology, 15(2).

Nworgu, B.G., (2006) Educational research; basic issues and methodology. Ibadan: Wisdom Publisher Limited, State Hospital Road Ring Road.

Okoro, C.A. and Etukudo, U.E. (2001). *Computer Assisted Instruction versus Extrinsic Motivation Based Traditional* Method: Its effects on female gender's performance in Chemistry. in O.O. Busari (Ed). Women in STM Education in Nigeria: STAN proceedings to the 42nd Annual Conference, 255-259, Ibadan: Heinemann Educational Books (Nig) Ltd.

Ololube, N. P. (2006) "Appraising the Relationship Between ICT Usage and Integration and the Standard of Teacher Education Program in a Developing Economy. International Journal of education and development using ICT: 2(3)

Osu, S. R., Udosen, I. R. and Akpan, B. P. (2010). Application of ICT in Senior Secondary Biology: Resources Availability and Level of Preparedness of Biology Teachers. Journal of Educational Research and Policies: 5(1): 22-25.

Ramírez-Correa P. E, Arenas-Gaitán J, Rondán-Cataluña F. J (2015) Gender and Acceptance of E-Learning: A Multi-Group Analysis Based on a Structural Equation Model among College Students in Chile and Spain. PLoS ONE10(10): e0140460. https://doi.org/10.1371/journal.pone.0140460

Schmidt, D.A., Baran, E., Thompson, A.D., Mishra, P., Koehler, M.J. and Shin, T.S. (2009) Technological Pedagogical Content Knowledge (TPACK): The development and validation of an assessment instrument for preservice teachers. Journal of Resources on Technology in Education, 42(2), 123-149.

Schumacher, P. and Morahan Martin, J. (2001). Gender, Internet and Computer Attitudes and Experience, Computers in Human Behaviour: 17(1), 95110.

Schumacher, P. and Morahan Martin, J. (2001). Gender, Internet and Computer Attitudes and Experience, Computers in Human Behaviour: 17(1), 95110.

Volman, M., van Eck, E., Heemskerk, L. and Kuiper, E. (2005). New Technologies, New Differences: Gender and Ethnic Differences in Pupils" Use of ICT in Primary and Secondary Education. Computers and Education: (45), 35-55.

Wheeler, S. (2001). ICT and the Changing Role of the Teacher: Journal of Educational Media: 26(1).

Yusuf, M. O. (2005). Information and Communication Technology and Education. Analysing the Nigerian National Policy for Information Technology. International Evaluation Journal: 6(3), pp. 316 – 332.