**TITTLE PAGE**

**THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY IN TEACHING AND LEARNING IN ENUGU-EAST LOCAL GOVERNMENT AREA OF ENUGU STATE**

**A**

**RESEACH**

**DONE**

 **BY**

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**BARCHELOR DEGREE (BSC.ED) IN COMPUTER SCIENCE**

***CERTIFICATION PAGE***

*Adamu Samuel Ojonuba a student in the department of Science and Vocational Education with registration number, U16/EDU/CSE/006, has satisfactorily completed the requirements for the course and the research work for the degree of Bachelor in Science Education BSc. Ed(Computer Science). I hereby declare that the work contained in this project is original, and has not been submitted in part or full for any diploma or degree of this university or any other institution.*

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

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***APPROVAL PAGE***

*This project is approved for submission by the department of science and vocational education*

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***DEDICATION***

*This project is dedicated to God the father, the Son and the Holy Spirit, for his enablement and guidance.*

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***TA*BLE OF CONTENT**

Title page - - - - - - - - - - i

Certification page - - - - - - - - - ii

Approval page - - - - - - - - - iii

Dedication - - - - - - - - - iv

Acknowledgement - - - - - - - - v

Table of Contents - - - - - - - - - vi

List of Tables - - - - - - - - - vii

Abstract - - - - - - - - - viii

**CHAPTER ONE: INTRODUCTION**

Background of the Study - - - - - - - 1

Statement of the Problem - - - - - - - 9

Purpose of the study - - - - - - - - 10

Significance of the study - - - - - - - - 10

Scope of the study - - - - - - - - 11

Research questions - - - - - - - - 11

**CHAPTER TWO: LITERATURE REVIEW**

Conceptual framework - - - - - - - - 12

Theoretical framework - - - - - - - - 22

Empirical studies - - - - - - - - - 24

**CHAPTER THREE: RESEARCH METHOD**

Research design - - - - - - - - - 30

Area of the study - - - - - - - - - 30

Population of the study - - - - - - - - 31

Sample and sampling Techniques - - - - - - 31

Instrument for data collection - - - - - - - 31

Validation of the instrument - - - - - - - 31

Reliability of the instrument - - - - - - - 32

Method of data collection - - - - - - - 32

Method of data analysis - - - - - - - - 32

**CHAPTER FOUR: RESULTS**

Research question I - - - - - - - - - 33

Research question II - - - - - - - - 35

Research question III - - - - - - - - 37

**CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATION**

Discussion and findings - - - - - - - - - 39

Data findings - - - - - - - - - - 40

Conclusion - - - - - - - - - - 41

Educational implication and findings - - - - - - 42

Recommendation - - - - - - - - - 43

Limitations of the study - - - - - - - - - 44

Suggestion for further studies - - - - - - - 44

Summary - - - - - - - - - - - 45

References - - - - - - - - - - - 46

Appendix I - - - - - - - - - - - 48

Appendix II - - - - - - - - - - - 49

Questionnaire - - - - - - - - - - 50

***Abstract***

*This research work investigated the Impact of Information and Communication Technology (ICT) in teaching and learning in Enugu-east local government area of Enugu state. It sought to establish the relationship between ICT and students‟ learning, particularly looking at the availability, accessibility and user-ability of the ICT resources in the said local government. This study employed descriptive survey design; data was collected using questionnaires and it was analyzed using mean. The researcher used a total number of 120 students, selected from the population of 950, using the simple random sampling method. The achievement test was subjected to test and re- test reliability technique. The study established among others that the availability of ICT resources in the secondary schools in the local government is still very much wanting and very inadequate for the students to use. Because of the limited number of functional computers and the computer laboratory, accessibility is timetabled. The researcher therefore recommends that Teachers should be more committed to teaching with the use of ICT-driven instructional aides.*

**CHAPTER ONE**

 **INTRODUCTION**

**Background of the study**

In recent years, several studies and reports have highlighted the opportunities and the potential benefits of information and communication technologies (ICT) for improving the quality of education, particularly ICT. ICT is used as a mechanism at the school education level that could provide a way to rethink and redesign the educational systems and processes, thus leading to quality education for all.

The use of Information and Communication Technology (ICT) creates a powerful learning environment and it transforms the learning and teaching process in which students deal with knowledge in an active, self directed and constructive way (Volman & Van Eck, 2005). ICT is not just regarded as a tool, which can be added to, or used as a replacement of existing teaching methods. ICT is seen as an important instrument to supporting new ways of teaching and learning. It should be used to develop student’s skills for cooperation, communication, problem solving and lifelong learning (Plomp Gregory 2004; Voogt, 2003).

Technology as a matter of fact can change or alter how people access, gather, analyze, present, transmit, and simulate information (Plomp, 2012). The impact of technology is one of the most critical issues in education (Webber, 2003). According to Flanagan and Jacobsen (2003), technology integration is meant to be cross curricular rather than become a separate course or topic in itself. Technology should be used as a tool to support the educational objectives such as skills for searching and assessing information, cooperation, communication and problem solving which are important for the preparation of children for the knowledge society (Drent Meelissen 2007).

In fact, innovative use of ICT can facilitate student centered learning (Drent, 2005). Hence, every classroom teacher should use learning technologies to enhance their student learning in every subject because it can engage the thinking, decision making, problem solving. These are cognitive behaviors that children need to learn in an information age. Despite successful efforts to acquire computer hardware and to raise the student to computer ratio to 5:1 (World Almanac, 2002), there has been less success identifying, which computer skills should be taught in school and how computers can be used for teaching and learning (Dooling, 2000). However, the use of information and communication technologies in the educative process has been divided into two broad categories: ICTs for Education and ICTs in Education. ICTs for education refers to the development of information and communications technology specifically for teaching/learning purposes, while the ICTs in education involves the adoption of general components of information and communication technologies in the teaching learning process. Integrating technology into curricula with the intent of positively influencing teaching and learning has been in a state of evolution over the past 20 years (Dias & Atkinson, 2001; Dockstader, 2000). Driven primarily by hardware and software evolution, accessibility to computers in educational settings, and popular instructional technology trends, technology integration has covered the continuum from instruction on programming skills, self-directed drill and practice, interactive learning software, online training, testing, instructional delivery augmentation, and Internet-based accessibility to information, communication, and publication (Dias & Atkinson, 2006). Information and communication technology is an essential tool in any educational system.

It has the potential of being used to meet the learning needs of individual students, promote equality educational opportunities; offer high quality learning materials, increase self-efficacy and independence of learning among students, and improve teachers’ professional development. (Apanpa and Lawal, 2009) opined that the use of technology, and knowing how technology can support student learning have become essential skills for professional teachers in today’s world.

To accurately understand the importance of Information and Communication Technology in Teaching and Learning, there is need to actually understand the meaning of ICT. ICTs stands for *Information and Communication Technology,* and are defined, for the purposes of this primer, as a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information.

The recent electronic information system has shown that they offer great opportunities for students in various disciplines. The use of electronic information system aids students to gain extra information outside what they have been taught in school. This is made possible through the use of internet connection. Electronic information system can be defined as the combination of hardware and software used to store data and information for external and internal forces for more accessible data base towards the accomplishment of the organizational goal, through the use of Electronic Information System (EIS). Necessary information is transmitted widely within the shortest possible time, thus enabling researchers, scholars, to meet, interacts, and exchange ideas in the field of education.

(Adebayo 2008) asserted that the functions of teaching in education process is considered paramount especially when we consider teaching and learning process as the acquisition of knowledge and skills by individuals to enable him become useful member of the society. Teachers are the primary agents of educational innovation therefore; ICT skills among secondary school teachers should be seen as an invaluable prerequisite that would help facilitate the teaching and learning procedure in this modern age of information explosion.

The main objective of information and Communication technology for teaching and learning according to is to facilitate a faster and better comprehension and appreciation of the subject matter in such a way as to obtain the maximum possible output from the teaching and learning process. (Nwachukwu 2005) opined that with the changes in the forms, formats, and expressions of information, the process of access, storage, transmission and reproduction have witnessed new media technology, it is therefore of paramount importance for teachers to adapt themselves to new roles and skills in order to cope with the impending changes. Posited that use of computers can revolutionize teaching and learning and could bring advances that would improve education dramatically. (Jegede2008) opined that ICT is now recognized as an essential ingredient for creating 21st century learning environment but Lau and (Sim 2008 ) reported that despite the apparent benefits of the use of ICT for educational purpose, studies showed that in many cases, the learning potential of ICT is deprived as many teachers are still not fully ICT literate.

(Mutula and Mutula 2007) asserted that there is a digital divide which refers to the widening imbalance of access to ICT’s between communities and countries which creates an imbalance for equitable access to quality education in an electronic age. They further opined that schools are being seen as very important institutions for bridging the digital divide in society because they represent focal points where many children from different communities converge for learning purposes. Though, (Servon 2002) argued that the technology gap should not be defined narrowly as a problem of access. Training and content. It should be included as other dimensions of the digital divide so that policy makers and programs to narrow the digital divide would not lose their focus. It is therefore of paramount importance for teacher preparatory institutions to aim at developing in teachers ICT pedagogical competencies that will ensure that these teachers help the country to cross over to the positive side of the digital divide and keep pace on the information superhighway (Akudolu, 2002).

Information Communication Technology (ICT) has changed the face of teaching and learning globally. And serious nations are taking the advantages inherent in ICT to impact on the educational sector. Though Nigeria is also making efforts to join the ICT fray, these efforts appear to be ineffective. Computer laboratories are largely non-existent in many public schools across the country. And where they exist, they are nothing to cheer. Due to this general neglect and other factors, comprising corruption, outdated curriculum, ill-motivated teachers, materialism and academic laziness on the part of Students and Teachers, the nation has been reaping mass failure in public examinations.

The success of the implementation of ICT is not dependent of the availability or absence of one individual factor, but is determined through a dynamic process involving a set of interrelated factors (Ema, E. & Ajayi, D. T. 2006).

The efforts of different governments and administrations have been focusing on providing the schools with good equipment. However, an analysis of the educational uses of ICT in the classroom has been lacking. This research focuses on the need to develop appropriate strategies to face this new teaching role and, additionally, the students’ role when integrating ICT in the teaching and learning processes. The role and the perspective of teachers have become highly relevant, highlighting them as crucial players in this process. Particularly, teachers use technology depending on their perceptions and their trust in the way it can contribute to the teacher and the learning process. Through knowing what they think, we will be closer to understanding what they do or what they might do with technology in their classrooms and in relation to their work.

The technologies to develop and deploy will ensure that the end user receives a minimum level of service even in adverse conditions. Examples of this would be:

* *E-Learning:* E-Learning is the convergence of learning and the Internet done at a computer, usually connected to a network, giving us the opportunity to learn almost anytime, anywhere. It is the use of network technology to design, deliver, select, administer, and extend learning. (Gregory Ford, 2007)

E-Learning provides faster learning at reduced costs, increased access to learning, and clear accountability for all participants in the learning process. It is not unlike any other form of education - and it is widely accepted that e-Learning can be as rich and as valuable as the classroom experience or even more so. With its unique features e-Learning is an experience that leads to comprehension and mastery of new skills and knowledge, just like its traditional counterpart. E-Learning is a valuable part of a well-planned and properly supported education and training environment.

* *Virtual classroom:* A virtual classroom is a web-based environment that allows you to participate in live training events without the need to travel. You listen to lectures, participate in lab exercises, ask questions, and receive feedback just as you would do in a conventional classroom except you do it from the convenience of your desktop, laptop or anywhere you have an Internet and phone connection.
* *Distance education:* The scope could also be extended to also establish distance education programs in the state so that schools in the rural areas could evolve their own non-formal educational program. How do we reach out to people with no or very poor internet connection? We can consider other means such as mobile phone network, cable television network or offline access using DVDs. To address the bandwidth constraints, we should make the same multimedia content available in multiple formats such as audio only, low quality video, and high quality video.
* *Email service:* Store and forward abilities to ensure that the user is able to send email to a local server can be implemented. The user is not asked to wait to come back when the "internet is back again". The user would also be allowed to type, send email and ask questions.
* *Market Price Information:* The buyer and seller could receive customized market data to allow them to make informed decisions.

*Local content:* Local content will be stored in a distributed architecture making it accessible to all kiosks in the area irrespective of problems with the leased lines.

* *Medical diagnostics / consultation:* Linking the rural communities over a reasonably high bandwidth line is the first step in connecting primary health centers to the good medical facilities provided in the city.

(CEO Forum on Education Technology 2001).

**Statement of Problem**

The research is very much concerned about the Impact of Information and Communication Technology in teaching and Learning in secondary schools in Enugu-east Local Government Area of Enugu State.

This is caused by certain factors which has attracted the concern of the researcher. One of the factors is:

1. Lack of equipments and technological know how

Other factors are as follows:

1. Lack of trained teachers, to handle the equipments for teaching and learning.
2. Negligence on the part of the state government to boost educative infrastructures in the state.
3. Lack of basic computer skills among the secondary school students.

**Purpose of the Study**

The general objective of the study is to investigate the Impact of Information and Communication Technology (ICT) in Teaching and learning in Enugu-East local government of Enugu State.

The specific objective includes;

1. To find out student’s exposure to teaching and learning with ICT in government secondary schools in the local government.
2. To determine the factors affecting the use of ICT related equipment present in each of the secondary schools.
3. To find out how functional and impactful the equipments are on student’s learning.

**Significance of the study**

This study should be of great importance to the policy makers in our secondary schools and also to the state and local governments of Enugu state because this research is aimed at helping them to appreciate the usefulness of ICT in teaching and learning so as to come up with policies that promote ICT in teaching and learning. The researcher hopes that result of the study may be useful to future researchers with interest in examining further the impact of ICT on students learning and teaching in general. This should lead to the generation of new ideas for the better implementation of ICT into learning process.

**Scope of the Study**

The study covers ten Government Secondary Schools in Enugu east Local government Area of Enugu State. The schools comprise both male and female schools. Out of the 10 secondary schools covered, Three out of 10 were chosen by the researcher for focus. The Chosen schools are:

1. Girls’ secondary School, Abakpa
2. National Grammar School, Nike
3. Trans-ekulu girl’s Secondary school, Trans-ekulu.

All of these above listed Secondary schools are located in Enugu-east local government area of Enugu state, Enugu.

**RESEARCH QUESTIONS**

This study sought to unearth answers for the following question

**1.** How does Information and Communication Technology help in Teaching and learning?

**2.** What is the availability of ICT related equipment present in each secondary school?

**3.** What are the factors affecting the teaching and learning with ICT in your school

**CHAPTER TWO**

**LITERATURE REVIEW**

**Conceptual framework**

The society has so far undergone three phases in its socio-economic development. The first phase was the agricultural revolution, the second was industrial revolution and the third phase is the current Information Technology and revolution (Barbra E.D 2004). According to (Daniels 2002) ICTs have become within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy.

It is pertinent to define some key words in this research work for easy understanding. The words are:

* **Computer:** computers can be described as a scientific machine that can be used to perform tasks or calculating according to set instructions or programs.
* **Information:** the act of informing or imparting knowledge. information is a processed data which gives meaning that can be expressed or extracted from representations of facts and ideas, for example, if some symptoms are fed up into a computer, and the computer after processing the data now indicates that “this has typhoid fever” this result from the computer is an information.
* **Technology:** Technology is the branch of knowledge that deals with creation and use of technical means and their interrelation with life, society, and environment (retrieved on 29th of March 2018 from [www.google.com](http://www.google.com)).
* **Information and Communication Technology (ICT):** Information and Communication Technology is defined or seen as instruments designed to educate, inform, and entertain.

 However, there appears to be a misconception that Information and Communication Technology. It is generally refers to ‘Computers and computing related activities’. This is fortunately not the case, although computers and their application play a significant role in modern information management, other technologies and/or systems also comprise of the phenomenon that is commonly regarded as ICTs Yusuf, M. O. (2005). state that near the end of the 1980s, the term ‘computers’ was replaced by ‘IT’ (Information Technology) signifying a shift of focus from computing technology to the capacity to store and retrieve information. This was followed by the introduction of the term ‘ICT’ (Information and Communication Technology) around 1992, when e-mail started to become available to the general public (Pelgrum, W.J., Law, Noberts. 2003). According to a United Nations report (1999) ICTs cover Internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network-based information services, and other related information and communication activities.

According to UNESCO (2002) information and communication technology (ICT) may be regarded as the combination of ‘Informatics technology’ with other related technology, specifically communication technology. The various kinds of ICT products available and having relevance to education, such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audiocassettes and CD ROMs etc. have been used in education for different purposes (Sharma, 2003; Sanyal, 2001; Ema, E. & Ajayi, D. T. 2006).

The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning, and research (Yusuf, 2005). A great deal of research has proven the benefits to the quality of education (Al-Ansari, 2006). ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Davis and Tearle, 1999; Lemke and Coughlin, 1998; cited by Yusuf, 2005).As (Jhurree 2005) states, much has been said and reported about the impact of technology, especially computers, in education.

Initially computers were used to teach computer programming but the development of the microprocessor in the early 1970s saw the introduction of affordable microcomputers into schools at a rapid rate. Computers and applications of technology became more pervasive in society which led to a concern about the need for computing skills in everyday life.

Hepp, Hinostroza, Laval and Rehbein (2004) claim in their paper “Technology in Schools: Education, ICT and the Knowledge Society” that ICTs have been utilized in education ever since their inception, but they have not always been massively present. Although at that time computers have not been fully integrated in the learning of traditional subject matter, the commonly accepted rhetoric that education systems would need to prepare citizens for lifelong learning in an information society boosted interest in ICTs Ogunsola, L.A. (2005). The 1990s was the decade of Computer communications and information access, particularly with the popularity and accessibility of internet-based services such as electronic mail and the World Wide Web (www). At the same time the CD-ROM became the standard for distributing packaged software (replacing the floppy disk). As a result educators became more focused on the use of the technology to improve student learning as a rationale for investment.

In the new educational system, there are likely to be four levels of learners. The first level will consist of students, who are able to afford the high cost of education; these set of students can easily get access to the educational gadgets like Computers and Monitors for their lectures which promote easy comprehension and understanding. They will obtain it from either public or private institutions of higher education. They will be getting the best of the facilities, and will soon form educational elites. The second level of learners will consist of intelligent and competent students, who are unable to afford the cost of education; they will obtain it from existing public institutions and will soon be competing with the first level for membership in the educational elite.

**Media and ICT for education: research perspectives**

A review of research on educational media, and more particularly on the integration of digital media in education, has allowed us to identify several areas of study that have been developed in different periods and under different epistemological, methodological and didactic assumptions. From the beginning, research has been centered on audiovisual media, but given the development of other technologies and, particularly, the inclusion of computers in school classrooms, new studies have been carried out on the impact and effects of the use of these technologies in schools.

Teachers play an important role in the teaching/learning paradigm shift. They must understand the potential role of technology in education. Also, they should become effective agents to be able to make use of technology in the classroom. The proliferation of technologies has complicated the teaching-learning process and finding the best ways of integrating technology into classroom practices is one of the challenges the 21st century teachers face. Effectively integrating ICT into learning systems is much more complicated than providing computers and securing a connection to the Internet. In fact, the integration of ICT is associated with a shift from instructive to constructivist philosophies of teaching and learning (Barker, 2010).

So, technology integration takes time; time to learn about the innovation, time to be adequately prepared to use it.

In this respect, principals play an important role and apply different strategies such as change agent, lifelong learner, principal supporter, and resource provider to implement ICT in schools (Han, 2002). Thus, they should be able to identify and articulate a vision, provide an appropriate model, provide individualized support, provide intellectual stimulation, foster acceptance of group goals, and achieve high performance expectations (Leithwood, 1994). They should have knowledge, skills and positive attitudes toward the implementation ICT in schools. In this way, they can create changes in their schools by focusing on action and by converting their teachers to be leaders who will eventually become agents of change. Therefore, teachers can play a role as a leader when they are committed to a cause and are self managing (Bennis & Nanus, 2014).

An examination of past research studies and reports on ICT implementation in schools show that there are two main factors that affect teachers’ uptake of ICT. These are:

 1. Manipulative

 2. Non-manipulative

 3. School and Teacher factors.

Research on the implementation of ICT in schools has also shown that these school and teacher factors are interrelated.

Moreover, no single solution exists to address the immense challenges of ICT integration because different perspectives of integrating ICT can be chosen (Becker, 2001; Niederhauser & Stoddart, 2001).

 According to (Fullan 2012), the process of change implementation is planned along three stages, namely adoption, implementation and institutionalization.

 In this respect, (Ben Brummelhuis 2013) stated that variables identified by the theories of educational change do not have equal impact during all stages of the innovation process of computer use in education. Hence, researchers must identify influencing factors at different stages of development. Based on this information, barriers to the successful use of ICT can be identified. An awareness of any barrier that teachers face could lead to the development of solutions for overcoming these barriers, develop useful training programs, and encourage the use of ICT. It is a fact that teacher training program play an important role to provide the necessary leadership in training pre-service and in-service teachers to deal with the current demands of society and economy.

They should model the new pedagogies and tools for learning with the aim of enhancing the teaching learning process. Moreover, teacher education institutions and programs must help teachers to understand how the new technologies can best be used in the context of the culture, needs, and economic conditions of their country. Hence, building the capacity of teachers in the utilization of ICT for education requires long-term continuous development of the lead trainers, sharing of knowledge among teachers, partnerships and collaboration among educators and organizations, and support from principals and administrators. These factors must be available in order to create changes in the classroom. Therefore, both teachers and trainers require ongoing support and opportunities to experiment with new skills and strategies over time.

Today, improved communication technology has made time and space less complex. It could be observed that this modern age is the age of information explosion in which an average individual wants to explore the information system. Thus, the ability for timely acquisition, utilization, communication and retrieval of relevant and accurate information has become an important attribute for better teaching-learning process (Adebayo, 2008). Facilities and resources such as computers and internet are very important tools in the hands of teachers if ICT learning is to be embraced in earnest. But the question is, are the facilities at the disposal of the teachers in secondary schools? If they are, are they of international standard and are the teachers utilizing the resources?

This paper has the purpose of finding out if Secondary school teachers are computer and ICT literate and to examine if they employ the use of computers and ICT in their teaching activities.

**Platform for collaborative studies**

Today there exist an irregularity between demand and supply for educational content. There is a huge demand for good quality education which is underserved due to the absence of enough good quality teachers. This problem becomes more acute as we proceed earlier in the education level (secondary school level compared to university level). For instance, well-qualified teachers are usually concentrated in cities and towns. Consequently students from rural areas (especially those from underprivileged socio-economic backgrounds) receive poor quality education and are not in a position to compete for opportunities with those in cities.

The use of information and communication technology (ICT) is becoming an integral part of Education in many parts of the globe. Nigeria is not left behind as ICT gradually finds its way onto the Educational systems despite chronic limitations brought about by economic disadvantages.

Fundamentally, education is a discipline like any other; it is a branch of human knowledge which is basically concerned with getting the young in the society prepared when they come of age.

According to Gbamanja, (2002. p. 131), education is a process, which seeks to change the behavior of a learner. Overall, behaviorist view education as the process of changing the behavioral pattern of people. Behavior in this sense refers to the way we change the learner, his or her thinking, his or her feelings and his/her other overt actions (Hergenhahn & Olson 2005).

Thus education is the process by which society deliberately transmits its cultural heritage through schools, colleges, universities and other institution (Gbemanja 2003).

In other to achieve the above- mentioned purpose in education, information and communication technology (ICT), is an essential ingredient that could help bring these gains and benefits to the fore.

Realistically, several researchers admitted that ICT have an impact in learning and teaching of science.

Globally, the use of Information and Communication Technologies (ICTs) is fast gaining prominence and becoming one of the most important elements defining the basic competencies of student.

In Nigeria, science teaching at that various level still retains the old conservative approach and if this situation would change, there is need for a diagnostic study.

Many researchers have carried out research on the implication of ICT for science teaching.

**Theoretical framework**

The theoretical rationale on which this research was built upon is from (The Nigerian national policy on education, F.R.N 2004) which states that; Computer literacy is therefore inevitable for the students, the Teachers and the Principals; if schools are to be effective and if academic goals are to be achieved.

Over the years, efforts have been made to provide computers to both public and private schools, at workshops and seminars organized to train students and teachers, in order to improve their skills and knowledge of computing and computer applications to better their productivity, competency and efficiency in the course of their academic pursuit and lessons delivery (for Teachers), but these could not go down well without problems. (Retrieved on 7th June 2018 from www.google.com).

The classroom is seen as a small society, and technology is having an increasing impact in schools throughout the country. In the same way that little is known about how technology affects communities in general, little is yet to be known about the effects that increased use of technology is having on school communities, in particular, on the sense of community of classroom learners (Wighting, 2006).

Thus the problems of secondary school education today ranges from low level of computer literacy among staff and students, inadequate computers for practical lessons and lack of internet connectivity in schools where there are computer laboratories and in some instances non power supply; also is the issue of inadequate trained staff/technicians for enhanced computer training and teaching, all these prompted the need to investigate the role of computer in promoting secondary school education today.

 The growing stage of youngsters is that particular period of time that provides them with the opportunity to develop the principles of life, make career decisions and begin the pursuit of one's goals; thus education is an important aspect for the youngsters, especially the ones that are still in secondary school.

 Education should include that kind of training that should be the extension to the fields of interest of these youths. The main motto of education is to provide knowledge, make every one aware about proper conduct and gain technical competency. Education helps in the development of an individual, physically, mentally and socially.

The importance of education particularly, secondary school education to youths is that it helps prepare them for greater responsibility.

 Thus, secondary school education should help the youngsters to define their career objectives, make them capable of deciding as to what they want from life, and enable them make progress in their fields of interest; computer education will go a long way in helping them realize this dream.

**Empirical studies**

(Ikpeazu 2006) stated that the development of education in Nigeria has been as a result of gradual process that predates the coming of the Europeans. Thus the development of education in Nigeria reflects the earlier impacts of these agencies, such as missionaries, the British colonial Government, Nigeria indigenous education, Islamic, Christian, Greek, Roman and western Agencies.

It will be carried out under the following subtitles:

1. The place of Computer studies in secondary school curriculum
2. Implementation of Information and Communication Technology in secondary schools.

Emma & Ajayi (2006) asserts that “figurative speaking instructional materials enable the teacher to be in more than one place at a time and to address several issues at a time. For example, a video material could be on while the teacher moves around to explain to individuals students the subject contents in response to requests based on individual differences on problems. While the video material continues, providing details of the assignment the teacher also becomes part of the listening audience. It reduces verbalism or repetition of world by the teacher without knowing their meaning and also adds Varity in reinforcing verbal messages by providing a multi-media approach. Esu (2004) added that instructional materials are indispensable factor in a teaching learning process. This is because or clearly words or verbalization has been found to be inadequate for effective teaching. ICT-driven instructional aids, frankly speaking reduce the level at which the teacher should strives himself in the process of talking rather he guide the process of the instructions. And as a result save his time in process of teaching.

(UNDP Evaluation Office, 2001). It is an increasingly powerful tool for participating in global markets, promoting political accountability; improving the delivery of basic services; and enhancing local development opportunities (UNDP, 2006). According to Ogunsola (2005) ICT “is an electronic based system of information transmission, reception, processing and retrieval, which has drastically changed the way we think, the way we live and the environment in which we live”. It can be used to access global knowledge and communication with other people (Ogunsola, 2005). Students who use

ICTs gain deeper understanding of complex topics and concepts and are more likely to recall information and use it to solve problems outside the classroom (Apple Computer, 2002). In addition, through ICT, students extend and deepen their knowledge, investigation, and inquiry according to their needs and interest when access to information is available on multiple levels (CEO Forum on Education and Technology, 2001). Information communication technology (ICT) has no doubt changed the face of teaching and learning globally. And serious nations are taking the advantages inherent in ICT to impact on the educational sector. Though Nigeria is also making efforts to join the ICT fray, these efforts appear to be ineffective. Computer laboratories are largely non-existent in many public schools across the country. And where they exist, they are nothing to cheer. Due to this general neglect and other factors, comprising corruption, outdated curriculum, ill-motivated teachers, materialism and academic laziness on the part of Students and Teachers, the nation has been reaping mass failure in public examinations. Arising from this, stakeholders are calling on government to provide basic facilities including ICT-driven teaching aids for the nation’s educational system (The Punch Newspaper 2012). This paper therefore particularly dwells on the Impact of ICT-driven instructional aids in Nigerian Secondary Schools and the causes of low levels ICT-driven instructional aids use in Nigerian Secondary schools, as well as provides recommendations.

**The place of Computer studies in secondary school curriculum**

The inclusion of Computer education as one of vocational subjects at both levels of the secondary education suggest the importance of computer studies not only to secondary school education but to the over- all development of the secondary school children (journal, Federal Republic of Nigeria 2004).

The assistance of computer/ or computing technology during the teaching and learning is essential. According to (Kwame, 2006) the society has become more computer literate for the past few decades. And as technology advances, society reliance on computing systems has increased. Therefore incorporating the teaching of Computer in secondary school system education is necessary in order to create familiarity with various computer assistant applications at a young age, particularly within a classroom environment.

**Implementation of Information and Communication Technology in secondary schools**

The role of Computer in the teaching and learning process is not only in the classroom, but can also be used to interact with students away from the school environment as an aid to homework and assignments that have been set during the holiday.

This added benefit means that an e-mail can be set up or discussion board where students experiencing any difficulty with their work can either have the option to ask the teacher discreetly for assistance or alternatively can discuss issues with their peers to solve problems within themselves.

The concept allows assistance to always be at hand with the added benefit of making a task more interactive. Similarly, a course website can be created in other to provide information for future students who are thinking of signing up to a certain class. This will allow the students to gain a comprehensive understanding of the course outline and what is required of them during the duration of the course and how the course can be accessed (Hodorowick, 2000). The benefit of the computer system is that it is fast and efficient, gathering information almost immediately, with the ability to process and access that would take too long manually.

Furthermore, different types of learning materials or teaching aids can be accessed from the internet, which can be used to make classroom activities more interactive. This system allows for flexibility in teaching style with the added bonus of promoting responsiveness to the variations of teaching methods that are available and that have been promoted by Computer system. The benefit of using Computer in Teaching and learning science further revealed that 70% were not sue, while 20% of the Teachers noted that with the use of the internet, students can access information on different subjects from various libraries or data bases provided on the internet (Odera,2011). Readily available Computers to students and teachers can make them to do the major part of their school work using web resources, software to help solve some mathematical problems. Teachers can also consult databases for lesson plans, and can interact with other Teachers to share teaching ideas, and can help students become more self-sufficient and creative in their school work. (Camoy, 2004; Usman, 2009).

The role of Computer in teaching and learning is universal as every activity today is Computer driven. The computer is fast and efficient; it fetches information in milliseconds or even less than that. Now, one can learn or study online, there are virtual classrooms and libraries online that you cans even get leaning materials from. Eventually, all educational processes are now on computers.

The Computer is a remarkable device with much more capabilities beyond our thinking. But one should always remember that man created computer and all of the programs that run on it, thus the inclusion of computer in the secondary school curriculum is timely and of great relevance as knowledge of computer will be useful in writing subsequent examination meant for tertiary institutions.

**CHAPTER THREE**

**RESEARCH METHOD**

This chapter describes the methods used for this research under the following sub headings:

**Research design**

The design adopted for this study is a descriptive survey design. This design is a useful way of obtaining information from people about their observation, opinion preferences and experiences simply by asking questions. This design was used for this study since a group of people have to be studied systematically by collecting and analyzing data from a chosen few considered sufficient representative of the population. The school was the unit of sampling used. A procedure for data gathering was developed and a number of tools to collect the necessary information were designed and validated. The design employed by the researcher here made it possible for the researcher to be able to critically analyze the result gotten from the questionnaire.

**Area of the study**

The research work was carried out in ten government secondary schools in Enugu- east local government area of Enugu state.

**Population of the study**

All the senior secondary schools students in Enugu-east local government area of Enugu State, in all the 10 government owned secondary schools were involved in the study.

**Sample and sampling techniques**

The researcher used a total of 120 students selected; 20 students were selected from each of the classes. The students were divided into 5 strata SSS 1 – 3), using their classes as the basis 20 students, were selected from respective strata using the simple random sampling method.

 **Instrument for data collection**

Questionnaire was used for data collection. The questionnaire consists of section **A** and **B.** Section **A**, contained the personal data of the respondent, and section **B** contained instructions on how to fill the questionnaire and also items relating to the research and their response formats. The questions were constructed with four options such as: Agree (A), Strongly Agree (SA), Disagree (D) and Strongly Disagree (SD). The respondents were required to thick (**√**) in only one answer in each round of the question.

**Validation of the instrument**

The data collected were arranged. The data was validated by three (3) experts in measurement and evaluation, in faculty of Education, Godfrey Okoye University Enugu. The validation was subjected to face validity.

**Reliability of the instrument**

The achievement test was subjected to test and re- test reliability technique. One hundred and fifty (150) copies of questionnaire were administered to secondary school students, each of the students were made to answer and submit the questionnaires. All these were done within two weeks. The test and re-test was carried out at the three (3) selected secondary schools in the local government.

The reliability of the instrument was 0.87 which is considered well enough for the study.

**Method of data collection**

Personal visit were made to the selected secondary schools, Data was collected using a questionnaire, and it was distributed by the researcher to the respective schools. Out of the whole questionnaires distributed, one hundred and ten (110) were recovered; seventy eight (78) was found useful.

**Method of data analysis**

The data was analyzed using mean. The mean value was obtained by summing up the nominal values assigned to the scaling items and dividing the sum by the number of items.

Thus:

\_

Mean=X= ∑f

\_\_\_\_\_

∑N

Any item with the mean of 2.50 or above was accepted, while mean that is below 2.50 was rejected.

**CHAPTER FOUR**

**RESULTS**

In this chapter, all information and data collected through questionnaires were organized by the researcher as shown in the table below.

The population of the study was 950.

**Research question I**

How does Information and Communication Technology help in Teaching and learning?

**Table I: Role of ICT in teaching and learning**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/NO** | **Items** | **A**4 | **SA** 3 | **D**2 | **SD**1 | **T** | **DEC****X** |  |
| 1 | ICT helps in Teaching by using ICT tools  | 30 | 20 | 100 | 50 | 200 | 2.15 | R |
| 2 | ICT has helped both secondary school students and tertiary institutions to understand easily what the Teachers teach in classes | 40 | 50 | 50 | 60 | 200 | 2.35 | R |
| 3 | The knowledge of ICT has helped academicians of all categories to carry out their work especially teaching in classrooms effectively. | 20 | 10 | 100 | 70 | 200 | 1.9 | R |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | With the help of ICTs, students will be able to select subjects that relate to the course they have intention to study when informed. | 20 | 50 | 50 | 80 | 200 | 2.05 | R |
| 5 | Information and Communication Technology,(ICT) has relieved students, staff and researchers in the field of education from their work | 10 | 10 | 100 | 80 | 200 | 1.75 | R |
|  |  |  |  |  |  |  | **2.04** |  |

The mean shows that many schools in Enugu- east local government of Enugu state are barely exposed to teaching with ICT gadgets in the course of their secondary education

**Research question II**

What is the availability of ICT related equipment present in each secondary school?

**Table II Availability of ICT facilities in schools**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Computers are in our school and we use them when the need arises. | 6 | 12 | 131 | 51 | 200 | 1.87 | R |
| 2 | We are satisfied with the present knowledge we have through ICT. | 20 | 28 | 95 | 57 | 200 | 2.06 | R |
| 3 | Computers are used to type school materials and to store information | 29 | 21 | 97 | 53 | 200 | 2.13 | R |
| 4 | We use Computers to do research in school through wide web (www). | 95 | 57 | 28 | 20 | 200 | 3.14 | R |
| 5 | Computers have been used in storing academic programs | 80 | 60 | 40 | 20 | 200 | 2.6 | R |
|  |  |  |  |  |  |  | **2.4** |  |
|  |

The mean shows that the statistical analysis of the secondary school students in this said local government in Enugu state are not really exposed to the use of Information and Communication Technology in their respective schools.

**Research question III**

What are the factors affecting the teaching and learning with ICT in your school

**Table III Factors affecting student’s learning**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/NO** | **ITEMS**  | **SA**4 | **A** 3 | **SD**2 | **D**1 | **T** | **.****DEC****X** |  |
| 1 | We don’t have qualified Teachers in Computer subjects and also ICT related subjects | 89156 | 91273 | 1530 | 55 | 200464 | 3.32 | A |
| 2 | We don’t have sufficient Computers in our school | 72128 | 89134 | 2040 | 1919 | 200321 | 3.07 | A |
| 3 | The school management does not allow us to touch Computers | 70 | 80 | 30 | 20 | 200 | 3.00 | A |
| 4 | We are only taught the theoretical aspect of Computer | 90 | 67 | 10 | 33 | 200 | 3.07 | A |
| 5 | Teachers are not motivated to learn Computer by the school authority | 95 | 70 | 15 | 20 | 200 | 3.2 | A |
|  |  |  |  |  |  |  | **3.13** |  |

The mean shows that there are a lot of factors affecting the use of ICT in many government schools in Enugu-east local government of Enugu sate. From the table above, we can boldly say that the availability of ICT in schools are very poor.

**CHAPTER FIVE**

**DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

**Discussion and findings**

Looking at the research carried out, this study assessed the Impact of Information and Communication Technology (ICT) in teaching and learning in Enugu-east Local government of Enugu state.

To determine the Impact of Information and Communication Technology in the said local government, questionnaires were administered, and a total number of 120 participants were involved, which were all students. All of them were selected; using the simple random sampling technique.

The survey found out that up to 94 (78.33%) of the schools do not have satisfactory equipments for teaching and learning in classrooms.

From the data collected and analyzed, the researcher came up with the following results:

In table I, the researcher intends to know the role of ICT in teaching and learning in secondary schools in Enugu-east local government area of Enugu state. Response to this question in the table shows the whole five items in question **I** is below acceptable means 2.50. Efforts needs to be made to make awareness about the usefulness of ICT in teaching and learning.

In table **II**, the researcher wanted to know the availability of ICT facilities in schools, the table shows mean score 2.4, in item, which is below the acceptable means of 2.50, this means that availability of ICT tools for the schools in the local government is very low.

 In table **III** the researcher wanted to know the Factors affecting student’s learning. The mean was above acceptable mean of 2.50 with mean score of 3.13. This indicates that there are many factors militating against the availability of ICT in secondary schools in the local government of focus.

**Data Findings**

 From the analysis of data collected, the researcher found out that

1. There is a great need for the full implementation of Information and Communication Technology in schools in the local government.
2. Some schools do not have a computers and Computer laboratory; talk more investing in Information and Communication technology which is essential in this 21st century in the class rooms.
3. Those schools that have computers do not even have a projector, which is one of the essential gadgets when it comes to ICT, and learning environment.
4. The school authority does not really show concern in making sure they have ICT tools in their respective schools.
5. Majority of the teachers and non-teachers cannot really make use of the Computer system (Computer Illiteracy).
6. From my personal findings, majority of government schools in this local government are not exposed in any way to the use of Information and Communication Technology in classrooms.

If this menace lingers, this means that the future of Computer literacy skills and the use of Information and Communication Technology in secondary education in Enugu-east local government is in jeopardy, if this persists among the people we profess to be the leaders of tomorrow. If they are not making judicious use of their time to engage themselves in making research with ICT gadgets and try to be enlightened by being Computer literates, the future of education in our country will be in serious jeopardy.

**Conclusion**

 Findings from this study indicated that the Impact / the usage of information and communication technology in the local government among the secondary school students is very low. And this is due to the fact that the management of the schools (secondary schools) takes the issue of Computer literacy and usage in teaching and learning in their various schools very lightly. And the researcher also observed that many teaching staff and non-teaching staff are not computer literate. Efforts should be made by the state government to fully implement.

**Educational Implication and findings**

The extent of this study shows low level of The Impact of Information and Communication Technology in teaching and learning in secondary school students in the local government, due to many constraints like:

* Lack of resources (facilities)
* Poor funding of public schools
* Negligence on the part of teachers

 Lack of training and retraining of Teachers, associated personnel and a host of others, which resulted from the nonchalant attitude of the government and other stake holders to education in the country. Nigeria has every resource to make her education system one of the best in the world, but reverse is the case. The outcome of this study revealed several implications in the use of Computer technology in education in Enugu-east local government. In the first place, if students, guidance and counselors are well exposed to the use of Computer, and learning with ICT, students would not find it difficult to do research on their own on the internet, and to do their assignments as well.

Another implication is that some schools do not have any Computer, let alone having Computer teachers. The students in this type of school will lack behind in so many things, especially now that we are in Computer age. They will not be able to stand with the students that are already conversant with learning with ICT because the instructional materials they see may be in 3D form which explains deep things than the one on paper. This may also lead to inferiority complex on the path of the students affected. Teachers and non-teachers should be trained on how to use computer, because that will help to reduce their burdens and also avoid loss of some important documents and also avoid leakage of question papers.

It will also help some students to retain at least 70% of what the teacher taught. Non-computer teachers can as well use it and teach their own subjects. It is true that computer games helps to develop the child’s brain, but with moderation. Most of them spend the whole of their time playing games to the detriment of their studies. And these often have a negative influence on their results.

And this is due to the corruption on the part of the leaders or government officials. The implication is that the hope of actualizing the National Policy on Computer Education can be dashed, if something drastic is not done and urgently too in our secondary schools. Particularly, in Enugu-East local government L.G.A.

**Recommendations**

In order to ensure that ICT-driven instructional aids are widely adopted and used in Nigeria's school system, the following recommendations are made.

1. Government should provide institutions at all levels in the country with adequate information-technology facilities.
2. Government should ensure adequate electricity supply in schools.
3. Teachers should be more committed to teaching with the use of ICT-driven instructional aids given the importance of practical knowledge in it.
4. The institutions and teachers education should mount periodic training sessions for teachers on the use of ICT-driven instructional aids.
5. Schools should appeals to non-governmental organizations, private sectors, individuals and industries to assists in supplementing and substituting obsolete ICT-driven instructional aids like projected and other software packages. f. Efforts should be made by government to post and provide teachers skilled in ICTs to each school to impact ICT skills to the students.

**Limitations of the study**

The generalization made to this study is however subject to the following limitations:

1. The researcher had no sufficient time to move around the 10 government secondary schools we have in the local government.
2. There was no transport fare to move from one place to another in the course of the research.
3. Students never really turned up for the questionnaires to be answered properly.

 **Suggestion for further studies**

In further studies, the researcher suggested the following:

1. The government should make every effort to provide ICT facilities to schools in the local so as to boost teaching and learning in the schools.
2. Parents should encourage their children by providing enabling environment for them to be computer literate.
3. The management of the schools in the local government should send their teachers on ICT training for them to be able to teach effectively with ICT.

**Summary of the study**

One of the many challenges facing developing countries today is that of preparing their societies and governments for globalization and the information and communication revolution. Policy-makers, educationists, non-governmental organizations, academics, and ordinary citizens are increasingly concerned with the need to make their societies competitive in the emergent information economy. Globalization and innovations in technology have led to an increased use of ICTs in all sectors - and education is no exception. Uses of ICTs in education are widespread and are continually growing worldwide. It is generally believed that ICTs can empower teachers and learners, making significant contributions to learning and achievement of the students. Therefore, ICT should be of utmost priority in our schools.

**APPENDIX**

**GODFREY OKOYE UNIVERSITY**

 **THINKER’S CORNER ENUGU**

**RESEARCH QUESTIONNARE**

Godfrey Okoye University thinker’s Corner, Enugu,

Enugu state.

7th June, 2018

**Dear Respondent,**

 I am a final year student of Godfrey Okoye University, Thinker’s Corner, Enugu. I am carrying out a research on the topic Impact of Information and Communication Technology in secondary schools in Enugu-East local government Area of Enugu State. (A case study of Girls secondary school, Abakpa Nike).

All information will be confidentially treated and will be used only for the research purpose only. Your cooperation will be highly appreciated.

**ADAM SAMUEL OJONUBA**

**(The Researcher)**

**APPENDIX 2**

**QUESTIONAIRE**

**INSTRUCTION:**  Please, you are kindly required to tick (√) as appropriate to the questions below.

**SECTION A: PERSONAL DATA**

1. Class of respondent (a) JSS1 (b) JSS2 (c) JSS3 (d) SS1

(e) SS2 (f) SS3

 2. Age range (a) 13-16 (b) 17-18 (c) 21 and above

 3. Present Occupation (a) Civil servant (b) Business man

 (c) Farmer (d) Others

 4. Parent’s educational status (a) FSLC (b) SSCE/GCE

 (c) HND/BSC (d) M.sc and above

 (d) Number of years in service 0-10 years 11-20 years

**Research question I**

How does Information and Communication Technology help in Teaching and learning?

**Table I Role of ICT in Teaching and Learning**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/NO** | **Items** | **SA**4 | **A** 3 | **SD**2 | **D**1 |
| 1 |  ICT help in Teaching by using ICT tools |  |  |  |  |
| 2 | ICT has helped both secondary school students and tertiary institutions to understand easily what the Teachers teach in classes |  |  |  |  |
| 3 | The knowledge of ICT has helped academicians of all categories to carry out their work especially teaching in classrooms effectively. |  |  |  |  |
| 4 | With the help of ICTs, students will be able to select subjects that relate to the course they have intention to study when informed. |  |  |  |  |
| 5 | Information and Communication Technology,(ICT) has relieved students, staff and researchers in the field of education from their work |  |  |  |  |

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