PERCEPTION OF SENIOR SECONDARY SCHOOL STUDENTS TOWARDS THE AVAILABILITY AND USE OF ICT FOR EDUCATIONAL PURPOSES IN MINNA, NIGER STATE.

BY

AROYEHUN, Rukayat Ajibola

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DEPARTMENT OF EDUCATIONAL TECHNOLOGY

SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

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ABSTRACT

Information and Communication Technologies are devices that are used in mostly all aspect of life. This is not just because of the ease of work they provide to the user but also the friendly user interface they have. ICT has continued to make an ever-increasing impact on all aspect of human endeavors with education not left out. With numerous benefits of ICT in education, what are the insights of students on the availability and usage of ICT? This study investigated the perception of senior secondary school students II on the availability and use of ICT in Minna, Niger State Nigeria for educational purposes. A sample of 1000 senior secondary school students were involved in the study, from twenty schools in Minna metropolis. They were selected by using simple random sampling technique. A questionnaire [PSSSICTEQ] was developed and validated through expert judgment and reliability coefficient of 0.86 was obtained. It was used to gather relevant data on availability of ICT and its usage. Findings confirmed that the students in Minna had negative perception towards the availability of ICT facilities in their schools but with positive perception towards its usage. Some factors were identified that affect the availability of ICT facilities in these schools. The null hypotheses were tested using t-test and ANOVA statistical analyses at 0.05 level of significance. Based on these findings, some recommendations were made which include providing sufficient and effective ICT facilities in schools, teachers should be trained on the use of ICT facilities and be made to use ICT facilities in teaching process.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDIX

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the study

Education is one of the main corner-stones for economic development and improvement of human welfare. Education is the backbone of every nation and the use of information and technology integrating in education increasingly show that learning in schools became effective. Education is the pivot on which the growth and development of any nation depends and this is why every nation is striving to educate her citizens irrespective of age. Education can be said to be the bedrock of both the developed and developing nations. Globally, most governments have devoted resources to information and communication technology (ICT) development, the traditional methods of instruction in Nigeria are been birthed out of academic and social impact due to the gradual introduction of ICT in learning (Arong and Ogbadu, 2010). The goal is to improve teaching and learning using innovative technologies in institutions of learning. This has brought about the formulation of Educational ICT policies; aimed at guiding the implementation processes of ICT use in schools (Awe, 2016). This realization makes the reforms in education and development to remain a central pre-occupation for many countries and for international development. In every country at any given level of economic development, there is a great demand for education reform in order to be able to face the prevailing political, social and cultural changes as well as scientific and technological transformations (UNESCO Educational policy and Reforms, 2008). In the past and present, nearly everybody in the industrialized countries of the world has gained access to the use of ICT. The provision of computers, radio, ancillary equipment, audio tapes and audio-visual tapes, microfilms for on-line learning in schools are not new to citizens of such countries. Besides, a lot of researches have been carried out in these advanced and industrialized countries for the purpose of

advancing knowledge on ICT to be used in education. This on the other hand has increased the use of ICT for teaching and learning and consequently has improved access to education in a way that nearly every student has his/her own gadget for use. This is made possible because the governments of Nigeria do vote a lot of money for the purchase of these gadgets. Population explosion in secondary schools in recent years suggests the use of Information and Communication technology (ICT) in the teaching-learning process as its adoption will promote educational interaction between students and teachers and will also enhance effective teaching and learning.

Information Communication Technologies ICTs in education have been promoted over the past decades particularly to expand access to and improve the quality of education. At the same time, globalization and shift to a knowledge-based economy requires that education institutions develop individual ability to apply knowledge in dynamic contexts. Although ICT is now at the center of education reform efforts, not all countries are currently able to benefit from this development and advances that technology can offer. As Senator Biodun Olujimi in 2018 rightly pointed out; lots of instructors still have the phobia for ICT use in teaching science and social subjects, posed with very wrong perceptions on the use of ICT depending on how they perceive its usefulness or ease of use. Their level of education might also be a big hindrance to the proper use of these ICT tools as we have teachers who are not properly trained or lack basic and adequate skills to fully maximize and optimize these tools. Thus, it is important to explore how well the perception of teachers, students to ICT affects their teaching of science and social science subjects, challenges faced and the benefits of ICT towards teaching and learning sciences. The developing countries are faced with challenges related to access, pedagogy or assessment when using ICTs to improve and reinforce education (Kozma et al., 2015). It is important to note that the concept, methods and application of the term ICTs are constantly evolving rapidly; starting from the popularity

of the issue of computers in education in the 1980s, when relatively cheap micro-computers became available for the consumer market, later, at the end of 1980s the term was replaced by IT (Information Technology); signifying a shift of focus from computing technology to the capacity to store, analyze and retrieve information. This was followed by the introduction of the term ICTs (Information Communication Technologies) around 1992 when email and World Wide Web (Internet) became available to the general public (Pelgrum and Law, 2003). Though initially educators saw the use of ICTs in the classroom mainly as a way of teaching computer literacy, it has a broader role: that of delivering many kinds of learning at a lower cost and with high quality than the traditional methods of teaching allow.

In Africa, Nigeria in particular, government have been making plans and looking for a determined way to initiate internet connection and technology training programmes. These programmes link schools around the states in such a way to improve education, enhance cultural understanding and develop skills that are needed by youths to secure jobs in the 21st Century. Examples of such programmes include an interconnectivity platform on social media. Nigeria has not fully harness effort to integrate ICT into her secondary school curriculum. It is quite unfortunate that, even today, many instructional and administrative works in the Nigerian secondary schools are still carried out manually, many of the files and documents are still kept inside file cabinets where they are accumulated with dusts and are often eaten up by termites and rodents, a sympathetic case that has made such files irretrievable! The state of teaching-learning activities in Nigerian secondary schools calls for review as most of the teachers in the public secondary schools still practice the traditional method of "chalk and talk" in the classroom. The traditional method of teaching appears to limit the extent to which students and teachers alike can move with the trend of changes across the globe. Although, the chalkboard and textbooks have been used for educational purposes over the years, it appears the system is fast becoming obsolete as it

makes the teacher the only repository of knowledge with little or nothing from the students. This resulted to low learning pace by students' in the scheme of ICT.

Information and Communication Technology (ICT) includes computers, the Internet, and electronic delivery systems such as radios, televisions, and projectors among others, and is widely used in today's education field. Kent and Facer (2012) indicated that school is an important gateway for young people to experience a wide range of computer activities. Increasingly, ICT is being applied successfully in instruction, learning, and assessment. ICT is considered a powerful tool for educational change and reform. A number of previous studies have shown that an appropriate use of ICT can raise educational quality and connect learning to real-life situations. As time goes by, they will have to expect and be willing to seek out new sources of knowledge. Skills in using ICT will be an indispensable prerequisite for these learners. ICT tends to expand access to education. Through ICT, learning can occur anytime and anywhere. Online course materials, for example, can be accessible 24 hours a day, seven days a week. Teleconferencing classrooms allow both learner and teacher to interact simultaneously with ease and convenience. Based on ICT, learning and teaching no longer depend exclusively on printed materials. Multiple resources are abundant on the Internet, and knowledge can be acquired through video clips, audio sounds, and visual presentation and so on. Current research has indicated that ICT assists in transforming a teaching environment into a learner-centered one (Castro *et al.,* 2011). Since learners are actively involved in the learning processes in ICT classrooms, they are authorized by the teacher to make decisions, plans, and so forth (Lu *et al.,* 2010). ICT therefore provides both learners and instructors with more educational affordances and possibilities.

Numerous studies have shown that if ICT is appropriately integrated into learning, it offers many advantages. Technology is very much in control in this era. For this reason, society, especially students and the future generations of the nation, must be able to control

technology as well as possible. Students as the nation's next generation are required to master various competencies or skills as their provision in the future (Ningsih, Shara, Andriani, & Kisno, 2021). Based on her literature review, Houcine (2011) listed four positive impacts of effective use of ICT in language learning: increasing learners' motivation which enhances personal commitment and engagement; improving independent learning; promoting learners' collaboration and communication; and improving learners' attainment and outcomes. These are in line with the results of some studies reporting that ICT use in language teaching increases students' motivation that develops their engagement (Chen *et al.*, 2014; Gleason, 2013). Technology play an important role in supporting effective learning in the classroom, if both students and teachers are able to use the technology properly. This is in line with the current situation where students have more opportunities to access technology in their learning activities. Therefore, the students' perception towards the use of ICT in learning is so much important to be researched. It is because ICT helps in improving teaching skill, helps in innovative teaching, helps teachers in preparation for teaching, helps in student evaluation, and in effectiveness of the classroom (Deb & Bhattacharjee, 2016).

In spite of the availability of ICT facilities, it still not visible if secondary school students still find it difficult to make good use of ICT for educational purposes. To this end, it became a necessity to determine the perception of senior secondary school students towards the availability and use of ICT for educational purposes in Minna, Niger state.

1.2 Statement of the Research Problem

Despite the availability of ICT facilities and its importance towards the teaching and learning in our secondary school in Minna, many students yet find it difficult to access them towards the betterment of their educational purpose.

It is in the light of the above the researcher deem it fit to find out or whether the teachers are well groomed to guide the student on how to use those ICT facilities in our secondary school for the betterment of education purpose in Minna Niger State.

1.3 Aim and Objectives of the study

The aim of this study is to investigate the perception of senior secondary school student towards the availability and use of Information and Communication Technology ICT for educational purposes in Minna, Niger State. The objectives of the study include:

1. To identify the perception of senior secondary school student towards the availability of Information and Communication Technology [ICT] for educational purposes
2. To identify the perception of senior secondary school student towards the use of Information and Communication Technology [ICT] for educational purposes
3. Identify the differences between male and female senior secondary school students perception towards the availability of Information and Communication Technology [ICT] for educational purposes
4. Identify the differences between male and female senior secondary school student perception towards the use of Information and Communication Technology [ICT] for educational purposes

1.4 Research Question

1. The following research questions are formulated to guide the study.
2. What is the perception of senior secondary school student towards the availability of Information and Communication Technology [ICT] for educational purposes
3. What is the perception of senior secondary school student towards the use of Information and Communication Technology [ICT] for educational purposes

4. What is the differences between male and female senior secondary school student's perception towards the availability of Information and Communication Technology [ICT] for educational purposes
5. What is the differences between male and female senior secondary school student's perception towards the use of Information and Communication Technology [ICT] for educational purposes

1.5 Research Hypothesis

The following null hypotheses were formulated and will be answer at 0.05 level of significance

HO_1: There is no significant difference between male and female senior secondary school student's perception towards the availability of Information and Communication Technology for educational purposes in Minna, Niger State

HO_2: There is no significant difference between male and female senior secondary school student perception towards the use of Information and Communication Technology for educational purposes in Minna, Niger State

1.6 Significance of the Study

The outcome of the study will be of benefit to the following.

Students: Integrating ICT in learning will increase students retention, academic performance, boost their motivation and preparedness in the usage of information technology facilities. It will also promote educational interaction between students and teachers which will enhance effective teaching and learning.

Teachers: It will enable the teachers to acquire different skills or methods in teaching, developing course contents, effective classroom management, automated test taking and effective forum of communication between the teachers and students.

Education Stakeholders: This information may also be useful to administrators, curriculums makers and other educationalist in education in determining the preparedness of secondary schools in Minna, Niger state in terms of availability of appropriate ICT infrastructure for e-learning. Also, the findings may be used as a baseline data for laying strategies on increasing the level of ICT integration in the Minna. The study may further indicate the capacity building gaps which may be useful in formulating framework to empower ICT users in making ICT available in the secondary school curriculum.

Government: This will boost the government to invest more funds in the purchase of these gadgets to enhance effective teaching and learning to take place in the state. It will also provide information and geared the government to initiate internet connection and technology training programme across local government in the state which will links schools together to improve education, enhance cultural understanding and develop skills that are needed by the students.

1.7 Scope of the Study

The study is concerned with the investigation on the Perception of Senior Secondary School Students towards the Availability and Use of ICT for Educational Purposes in Minna, Niger State**.** The study will cover twenty secondary schools across Minna Metropolis. The study targeted the senior secondary school II students in the twenty secondary schools which includes: The study will last for a period of four weeks (4 weeks).

1.8 Operational Definition of Terms

Availability: The level at which we can find the Information and Communication Technology in secondary schools.

Educational Purposes: The process of using Information and Communication Technology for teaching and learning purposes.

Information and Communication Technology: Wide range of technologies that are used by electronic means in the attainment, processing, transmission, circulation and storage of information in form of text, audio, graphics and video to create educational resources.

Perception: To understand the meaning or nature of Information and Communication Technology (how easy it operates and functions).

Secondary School Student: Educational settings where post primary students are trained and equipped with skills that can help them in tertiary institution.

CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter reviewed related literatures under the following sub-headings:

1. Conceptual Framework
2. Theoretical Framework
3. Empirical Studies
4. Summary of Literature Related.

2.1 Conceptual Framework

2.1.1 Concept of information and communication technology

Information and Communication Technology' (ICT) first appeared in the mid-1980s and was defined as "All kinds of electronic systems used for broadcasting telecommunications and mediated communications", with examples including personal computers, video games, cell phones, internet, and electronic payment systems and computer etc. ICT is the digital processing and utilization of information by the use of electronic computers. It comprises the storage, retrieval, conversion and transmission of information (Ifueko, 2011).

ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries. The term is somewhat more common outside of the United States. The ICT is made of computer and communication technology. The computer technology is the tool for storing and processing information in digital form while communication technology helps us to transfer and disseminate digital information. Communication Technology is the process of sending, receiving and exchanging information through network systems with the help of IT and CT. Any information can be exchanged from anywhere and anytime without any borders. This information exchange is possible through LAN, expanding and connecting to other networks globally. According to the Encyclopedia of Computer Science, "Information Communication Technology (ICT) is an imprecise term frequently

applied to broad areas of activities and technologies associated with the use of computers and communications". According to UNESCO "ICT is a scientific, technological and engineering discipline and management techniques used in handling information and application and association with social, economic and cultural matters". Information and communication technologies (ICTs), is the application of computers and other technologies to the acquisition, organization, storage, retrieval, and dissemination of information (Gulbahar, 2008). However, in this context, information and communication technology is the use of electronic devices such as computers, telephones, internet, and satellite system, to store, retrieve and disseminate information in the form of data, text image and others. American Library Association (1983), defined information communication technology (ICT) as the application of computers and other technologies to the acquisition, organization, storage, retrieval, and dissemination of information. The computers are used to process and store data, while telecommunication technology provides information communication tools, which make it possible for users to access databases and link them with other computer networks at different locations. According to Krohmer and Budke (2018), Information and Communication Technologies can be split into three components namely the technology part; information that the technology helps to deliver; and a communication process that the technology facilitates and serves as a medium for the information.

2.1.2 Concept of ICT in education

Nigeria, as one of the developing countries in the world, should prepare its citizens for the information revolution. Technology is improving so rapidly that a lot of current professions will become extinct in about 10-15 years. Therefore, ICT in education in Nigeria should be a priority to the government. Still, it is important to know the advantages and disadvantages of ICT education.

Information and Communication Technology (ICT) in education is the mode of education that use information and communications technology to support, enhance, and optimize the delivery of information. Smaldino *et al.* (2008) stated that in education, ICTs can be used to aid management and administrative activities, as an object of instruction for teaching and instructional purposes. Using ICT as an object of instruction consists of learning to acquire knowledge and skills to cope with challenges in educational system. Using ICT for teaching and instructional purposes focuses on the use of it to acquire an integrated set of knowledge and skills useful for dissemination of information in educational system and to effectively perform in the world of academic.

Worldwide research has shown that ICT can lead to an improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan, proved that an increase in the use of ICT in education with integrating technology to the curriculum has a significant and positive impact on students' achievements. The results specifically showed that the students who are continuously exposed to technology through education has better 'knowledge', presentation skills, innovative capabilities, and are ready to take more efforts into learning as compared to their counterparts.

The Mobile learning (m -learning) as a form of e -learning is a rising trend where the education has outgrown the physical constraints of the classrooms and acquired mobility. Student's access information whenever and wherever they want, and institutions that provides such advanced technological terrains is rising in number day by day.

2.1.2.1 Advantages of ICT in education

ICT is a universal tool for the globalization. Students of developed countries can`t imagine their life without ICT. Moreover, it also serves as an assistant for teacher all around the world. It`s impossible to imagine a modern professional without basic knowledge of ICT.

Furthermore, it`s impossible to compete on the globe without knowing the basics of ICT. Here are five basic advantages of ICT in education:

Fast Communication Factor

The modern technologies illuminate all geographical boundaries, so students can join various projects all around the world. It is also possible to learn about new cultures and languages without leaving your home! It is like a science fiction that has become a reality. Students can exchange files between each other at fantastic speed with no limits on space!

Motivating Factor

Young people are very drawn to technology news. Educators must use technology tools in their lectures to keep the attention of young students. Any new technology opens new possibilities for teaching! For instance, the internet has opened great possibilities for innovative ways and methods of studying.

Cooperative Factor

The chance of cooperative learning made available via ICT encourages dialog between students! They can also learn about the ideas of collaboration from the internet. It makes teachers' jobs easier as they can approach their students with the help of modern technologies. Same thing applies to the teachers, they can share knowledge or facts about their students and monitor the overall progress in a classroom via ICT.

Research Factor

It is obvious that with internet and modern technologies, it has become ineffective to make any kind of research in libraries alone. The internet is an open world to the diverse types of knowledge for students. With the vast number of tools open to them, the internet is impossible to resist! That is why a teacher should help students find materials for their research papers!

New Skills Factor

A student can acquire any kind of skill with the use of technology, for example, by simply watching self-education videos on YouTube, you can acquire many new skills. They can also learn new languages using modern technologies without having any teacher around them! When they know the basics, it is even possible to use their skills right away!

2.1.3 Availability and usage of ICT facilities in enhancing teaching and learning in secondary schools

Information and communication technology comprises a diverse set of technological equipment, tools, facilities and services that can be used for effective teaching and learning. In motivating learners to learn, Okorieocha (2010) noted that ICTs such as videos, television and multimedia computer software: that combine text, sound, and colourful moving images can be used to provide activities that will engage the students in the learning process. Okojie (2011) positioned that, different ICTs do make some valuable contributions to various parts of educational development and effective learning through expanding access, promoting efficiency, improving the quality of learning, enhancing the quality of teaching and improving management systems. The scholar further noted the varieties of ICT facilities relevant for teaching and learning in secondary schools which are: television, Internet, computer, facsimile, tape records, video, teleconferencing, projectors, and phones among others.

Television, popularly known as TV is a telecommunication medium that is used for transmitting and receiving moving images and sound. Television can be a very powerful and effective learning tool for secondary school students if used wisely. It can be used for a broad range of programming types that educate, inform and entertain viewers. Internet television has seen the rise of television programming available in the Internet through services such as player, Hulu, Netflix (Wikipedia, 2014). Storage media such as video

cassettes, laser discs, DVDs and high – definition blue – ray discs enable viewers use the television set to watch recorded materials. Finally TV needs good source of power for operation and also requires proper handling and maintenance.

Internet is a global network of interconnected computers, enabling users to share information along multiple channels. By browsing the Internet, you access information on seemingly limitless topics (Dombro, 2013). He further noted that, with the Internet potential as a research tool, teachers must instruct and guide their students on manageable strategies for sorting through the abundance of information. The search for reliable resources can be both overwhelming and frustrating if students are left on their own in their initial search. Sending electronic mails, reading a newspaper, chatting, booking a hotel reservation, shopping, e.t.c. are several services of the internet. Internet requires good management skills and work effectively with stable power supply.

Computer, the machine accepts input from a user, processes the input, stores the result if desired or produces output. According to Aina (2004), computers can basically be divided into three parts: hardware, software and human ware. He noted that all these three components are needed before a computer can perform its myriad of functions. The equipment itself and the accessories constitute the hardware, while the set of instructions that enable a computer perform many kinds of functions is called the software. It is the software that instructs the hardware on what to do. The role of human beings according to Aina is to manipulate both the hardware and software to serve the various purposes in which a computer is involved hence it is called human ware. The computers are very useful and versatile in the teaching learning process. They are regarded as the pivot, backbone or hub of all ICT facilities. It imprints knowledge into students' brains by transmitting the lessons of experience through a variety of sensory pathways (Ugwoke, 2011). Varieties of computer accessories used in packaging and repackaging information includes: CD-ROM, flash

drives, tapes, etc. These accessories can store, retrieve and disseminate information of any form to learners. Computer requires good handling, management and works effectively with stable power supply.

Film slides: teachers can use films to communicate information to change attitude, to develop skills, to raise interest, enthusiasm, or to raise problem, to evolve moods. Films can be used in teaching factual materials and performance of skills faster than oral teaching. teachers can bring films on the use of the library to illustrate all operations within the library and exhibit it during lecture hours. This can be projected on a piece of 35mm film. Such films are accompanied with audio tape for clarity (Jegede et al., 2011).

Mobile phones are communication technology that enables the use of network for the delivery of education and training of students through SMS, email and other services. Mobile phones require good management and work effectively with stable power supply

Projector is a piece of equipment for projecting the image from film onto a screen and for playing back recorded sound from tracks on the film. Large volumes of teaching materials could conveniently be transferred to a film. This according to Ngwoke (2011) makes for efficient and alternative storage of information without recourse to clumsy book movement. Projectors need good source of power for good output and proper maintenance. Access to them is supervised by trained staff.

Assimonye (2004) says that the elements of the information age are the new ICT facilities in the present environment. These ICT facilities involve computer-based Instruction (CBI), projectors (overhead and slide), internet, television, E-mail, voice mail, video discs, CD discs, diskettes, world wide web, video conferencing, computer assisted instruction (CAI), etc. Nnaka (2004) revealed that, apart from CAI and the use of e-mail in the classrooms, whiteboards, an interactive computer display, which can incorporate graphics, films, sound and Internet links, are replacing the conventional blackboards and white chalks.

Whiteboards now focus on technology just like the way blackboards once did with the written word. However, despite the increasing prominence of whiteboards, meeting pads are gradually overtaking them. Those pads allow students to put their ideas onto white boards from their own desk.

2.1.4 Perception of secondary school students towards the availability and usage of ICT

The integration of ICT in education is complex, though it is not a new concept but with the rapid development of emerging technologies, such as web technology, ICT integration has increasingly attracted the attention of educators. As a result, the Government made various attempts in the past to improve the achievement of students in schools, placing a lot of emphasis on ICTs as a tool for teaching and learning (MOESS, 2007).

Technology should be used not because it is available or it has been shown effective in some cases. It should be used to enable the process and enhance learning because inappropriate use of technology can lead to negative effects. Integration has a sense of completeness or wholeness (Grabbe& Grabbe, 2007) by which all essential elements of a system are seamlessly combined together to make a whole. In education, simply handing out to students a collection of websites or CD-ROM programmes; taking your students to the computer lab once a week or using an electronic worksheet is not necessarily ICT integration. In a properly prepared ICT integrated lesson, ICT and other crucial educational components such as content and pedagogy are molded into one entity. As a result, Russell et al. (2003) concluded that the objective of the lesson may be achieved: but if the ingredients were taken away from the ICT integrated lesson, the quality of the lesson would be somehow be diminished. According to Yambo and Tuitoek (2014) in their study done among high school principals opined that instead, technology is integrated when it is used in a seamless manner to support and extend curriculum objectives and to engage students in a meaningful learning. This consequently yields better summative education results. It is not something

one does separately; it is part of the daily activities taking place in the classroom. Based on this evidence, schools should embrace the current technology to boost the education sector in Minna, Niger state.

ICT integration is more of a process rather than a product. The computer should be fitted into the curriculum not the curriculum into the computer Eurydice (2005). Therefore, effective ICT integration should focus on pedagogy design by justifying how the technology is used in such a way and why. Effective ICT integration into learning process has the potential to engage learners. Additionally, ICT can support various types of interactions in the learning environment: learner – content, learner- learner, learner-teacher and learner-interface. These types of interactions make the learning process more interactive and learners more active and engaged Wong and Mill (2006).

ICT integration in education generally means technology-based teaching and learning process that closely relates to the utilization of learning technologies in schools. Due to the fact that students are familiar with technology and they will learn better within technology-based environment, the issue of ICT integration in schools, specifically in the classroom is vital. This is because, the use of technology in education contributes a lot in the pedagogical aspects in which the application of ICT will lead to effective learning with the help and supports from ICT elements and components (Jamieson-Procter et al., 2013). It is right to say that almost all ranges of subjects' start from mathematics, science, languages, arts and humanistic and other major fields can be learned more effectively through technology-based tools and equipment. In addition, ICT provides the help and complementary supports for both teachers and students where it involves effective learning with the help of the computers to serve the purpose of learning aids (Jorge et al., 2003

2.1.5 Gender influence in ICT usage

ICT competence has been used by scholars in different dimension. In recent years gender studies have reflected an aspect of life which gains massive benefits from the utilization of technology. Gender differences have been recorded in terms of classroom interaction, teaching practice, skills acquisition, information literacy behavior, professional development and reading habits (Funmilayo, 2013). Gender is an enduring characteristic of undergraduate pre-service teachers that stands as an important variable which could produce differences in individuals. Gender is intertwined with identity, expression, presentation, relationships and societal role and structure, among other things. As noted by the United Nations (2008) gender refers to the social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, as well as the relations between women and those between men. Gender determines what is expected, allowed and valued in a woman or a man in a given context. In most societies there are differences and inequalities between women and men in responsibilities assigned, activities undertaken, access to and control over resources, as well as decision-making opportunities. These differences and inequalities are present in the education sector and it also affects the use of mobile technologies and other ICT tools.

In addition, studies have established that girls are less confident than boys in their computer skills, and that some international studies have found that boys scored better than girls in computer related knowledge and skills in vast majority of countries. In addition, the three computers related occupation (computer science, computer engineering and system analysis) are the top career choices for boys (Sarac, 2014). Females also have more negative attitude towards computer (Mustafa and Mustafa, 2018). The study thus confirmed the view of gender and competence as actively constructed in a social process. This is because understanding of the terms was negotiated among individuals in the groups studied, and

therefore, used as norms with which individuals understood themselves and their behaviors. This will in turn negatively affect the awareness, perception, attitude of undergraduate pre-service teachers in such societies.

The gender gap is a critical challenge that threatens to leave millions of women and girls behind in an increasingly globally connected world (Adediran *et al.,* 2013). This is to promote gender equality and empower women. This should commence with the elimination of gender disparity in lower levels of education. Only when this gender gap is bridged, will the full potential of both male and female pre-service teachers in using ICT for electronic teaching be harnessed.

2.2 Theoretical Framework

The theoretical framework of this study is based on the Technology Acceptance Model (TAM) that is developed by Davis (1989), which is linked to the Theory of Reasoned Action of Fishbein (1975). The Technology Acceptance Model (TAM) represents one of the explanatory models having most influenced the theories of human behavior. TAM was developed with the primary aim of identifying the determinants involved in computer acceptance in general and examining a variety of information technology usage behaviors. Davis, Bagozzi, and Warshaw (1989) assert that TAM explains why a user accepts or rejects information technology. TAM provides a basis with which one traces how external variables influence beliefs, attitudes, and intention to use technology.

Two cognitive beliefs are posited by the TAM; perceived usefulness (the degree to which the technology will improve achievement) and perceived ease of use (degree of easiness to use the technology). According to the TAM, the actual use of a technology is influenced directly or indirectly by the user's behavioral intentions, attitude, perceived usefulness, and perceived ease of the technology. In addition, the TAM proposes that external factors (self-efficacy, anxiety, motivation, external control, etc.) affect intention and actual use through

mediated effects on perceived usefulness and perceived ease of use. Guided by the theory i.e., TAM, this study aimed at establishing how perceived usefulness and ease of use influence the use of ICT for educational purposes by SS2 students of secondary schools in Minna Niger state.

2.3 Empirical Studies

For the past few years, many projects have been conducted to explore the effectiveness of mobile learning as a new learning form. These projects vary from small projects that test the use of mobile devices to support learning at schools and universities, to large projects that are trying to build an integrated mobile learning environments which take into account the learners context.

The following list introduces some of the interesting projects in the mobile learning field:

Alagu and Thanuskodi. (2018) carried out research with the aim to analyze students' awareness and use of ICT in the rural district of Dindigul city in India. The study adopted the survey research design, and data were obtained using questionnaire that was distributed to the randomly selected 150 students in the rural area. Data obtained from the respondents was analyze for both descriptive and inferential statistics using SPSS (version 23). Independent t-test and ANOVA test of differences were performed across two variables which are gender and age. The result of the study shows that majority of the respondents had positive awareness of ICTs.

Mustafa *et al.* (2018) carried out a study on attitude towards e-assessment: influence of gender, computer usage and level of education. An e-assessment scale was used with a sample of 853 students to investigate the influence gender towards e-assessment. A mimic modeling approach was utilized following a confirmatory factor analysis. The result shows that the male exhibited significantly more positive attitude towards e-assessment than female.

Aladesusi *et al.* (2018), carried out research on assessment of undergraduate attitude to and utilization of mobile technologies for learning in Lagos state. This was a descriptive survey carried out on 298 randomly sampled undergraduates, using a researchers design questionnaire. Data collected was analyzed using Cronbach Alpha. The result shows that there was no significance difference between male and female undergraduate students' attitude towards the use of mobile technologies.

Nuhu *et al.* (2017), carried out a study on the perception of ICT status among lecturers and students on teaching and learning of engineering in Federal University of Technology Minna, Niger state. The study adopts cross sectional survey research design, the sample of the study consists of 1060 lecturers and students randomly drawn across the eight departments in the School of Engineering and Engineering Technology (SEET), FUT Minna. A researcher designed questionnaire was used to obtain data from the respondents, and the data obtained were analyze using frequency count and percentage methods. Result of the study shows that over 75% of the respondents agreed that there are ICT tools available for teaching and learning purposes.

2.4 Summary of literature reviewed

According to Philip and Josiah (2003), the advent of the internet has influenced all aspect of society including education. Gbadeyan (2013) examined the various factors that influences female enrolment in computer education or IT related courses and grouped them under the following: socialization, the role of computer software, the importance of role models, inaccessible to computers, school policy and classroom practice, unfamiliarity with computer and other IT accessories. Salta and Tzougraki (2014), surveyed 576 high school students in Greece. They found no gender differences in students' regarding interest, usefulness, and importance of computer.

In Ondo State, Nigeria Fiwasaye (2012) investigated a sample of SS III students' perception on computer Science. He concluded that science students in selected schools perceived positively towards computer education than art students..Jang (2011), surveyed 231 SS III secondary school students in Plateau State with respect to students' perception on science subjects; Physics, Chemistry, Computer and Mathematics, Jang reported that male students were found to have computers at home and enhanced their positive perception towards computer education at schools. Jang showed that there is significant difference in students' perception towards computer education on the basis of gender and students' background.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter will discuss methodology to be use in this study to accomplish its objective. The chapter presents, research design, population of the study, sample size and sampling techniques, instrument for data collection, validation of instrument for data collection, administration of the instrument and data analysis.

3.2 Research Design

The research design that will be used for this study is a descriptive survey. This was adopted to enable the researcher collect relevant data from the respondents (students) with respect to their perception on computer education.

3.3 Population of the Study

The population for this study consist of the Senior Secondary (SS II) students in twenty (20) secondary schools across Minna metropolis, Niger State. The students comprised of male and female drawn from government owned schools.

3.4 Sample and Sampling Techniques

The researcher used simple random sampling technique to select twenty (20) public secondary schools for the study on the basis of fifty (50) students per school. Therefore, a total of one thousand (1000) SS II respondents constituted the sample.

3.5 Research Instrument

The instrument used for data collection was a questionnaire designed by the researcher and titled "Perception of Secondary School Students on ICT for Education Questionnaire (PSSSICTEQ)". The questionnaire was designed to investigate senior school students' perception on Information and Communication Technology for educational purposes. The PSSSICTEQ consisted three (3) sections. Section A was designed to elicit personal information about the respondent; Section B contained ten (10) items that investigated the factors that affect students' perception on ICT usage for education and Section C had twelve (12) that examined student's perception on the use of ICT for education. The respondents were required to provide responses in a four (4) point scale to their level of agreement with the statement given as "Strongly Agree", "Agree", Disagree" and "Strongly Disagree".

3.6 Validity of Instrument

The instrument (PSSSICTEQ) was validated through the researchers' supervisor who read through, vetted, scrutinized and corrected the questionnaire so as to establish the validity of the instrument before it was distributed to the audience.

3.7 Reliability of Instrument

Reliability of the instrument in this research was determined using a retest technique to obtain the reliability co-efficient at two (2) weeks interval and it was found to be 0.86. This was considered reliable hence suitable for use in this study.

3.8 Method of Data Collection

The instrument was administered on respondents personally by the researcher. One thousand questionnaire forms were administered, eight hundred and seventy-six (876) which amount to 87.6% form could be retrieved and used for the study. Others forms were either not returned or not properly filled. Out of this percentage, three hundred and twenty-seven (327) were males five hundred and forty-nine (549) were females. The data collected were scored on the basis of four-point scale of 4, 3, 2 and 1 as indicated by their level of agreement as contained in the retrieved questionnaire.

3.9 Method of Data Analysis

The data collected were analyzed by using frequency and percentage statistical data method to answer research questions while t-test and ANOVA statistical analyses were used to test the two null hypotheses postulated for the study at 0.05 level of significance.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis and interpretation of data collected.

4.1.1 Research Question One

What are the Information and Communication Technology devices available in the school?

Analysis of the research question was made and presented in table 1.

Table 4.1: Frequency and percentage distribution showing the availability of ICT facilities in schools.

	Males				Females			
	Available		Not available		Available		Not available	
ICT facilities	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Computer	285	87.2	42	12.8	293	53.4	256	46.6
Internet facilities	25	7.6	302	92.4	61	11.1	488	88.9
Television set	48	14.7	279	85.3	59	10.7	490	89.3
Satellite dish	96	29.4	231	70.6	72	13.1	477	86.9
Email account	51	15.6	279	85.3	68	12.4	481	87.6
Scanner	92	28.1	235	71.9	189	34.4	360	65.6

Electronic notice board	12	3.7	315	96.3	32	5.8	517	94.2
Projector	86	26.3	241	73.7	112	20.4	437	79.6
Digital camera	18	5.5	309	94.5	22	4.0	527	96.0
Radio	52	15.9	275	84.1	81	14.8	468	85.2

The above table 4.1 which shows the percentage availability of the listed ICT facilities in selected schools in Minna Niger State. Computer set was discovered to be the most available ICT facility in majority of the schools in the State. Therefore, it can be concluded that ICT facilities are grossly inadequate in secondary schools in Minna, Niger State.

4.1.2 Research Question Two

What is the perception of senior secondary school II students towards the use of ICT for educational purpose?

Table 4.2: Frequency and percentage distribution table showing students' perception to ICT

	Agree		Disagree	
Items	**F**	**%**	**F**	**%**
There are ICT facilities in my school.	625	71.1	251	28.9
ICT facilities in my school are adequate.	421	47.9	455	52.1
ICT facilities in my school are efficient.	587	66.8	289	33.2
Students have access to ICT in my school	418	47.7	458	52.3
Students are competent to make use of computers in my school.	382	43.5	494	56.5
The various forms of ICT facilities in my school are being used regularly.	452	51.4	424	48.6
Students have opportunity of attending computer training programme.	526	59.8	350	40.2
Periodic training is organized for students on the use of ICT.	312	35.5	564	64.5

Students have e-mail addresses and can check their e-mail.	409	46.5	467	53.5
Students are knowledgeable in the use of ICT.	667	75.9	209	24.1

The result in Table 4.2 shows that 625 (71.1%) of the students agreed that there are ICT facilities in their school while 251 (28.9%) reported that they do not have. 421 (47.9%) of the students also indicated that the available ICT facilities available in their schools are not adequate while 455 (52.1%) indicated that the available ICT facilities in their schools are adequate. 587 (66.8%) students declared that the available ICT facilities in their schools are effective while 289 (33.2%) declared that they are not effective. 418 (47.7%) reported that they have access to ICT facilities in their schools while 458 (52.3%) of the students reported that they do not have access to ICT. 382 (43.5%) claimed to be competent in making use of computers while 494 (56.8%) claimed not to be competent.

The result further shows that 452 (51.4%) of the students indicated that the various forms of ICT available in their schools are used regularly while 424 (48.6%) indicated that they are not used regularly. 526 (59.8%) students reported that they had opportunity to attend computer training while 350 (40.2%) did not have opportunity to attend computer training. 312 (35.5%) claimed that periodic training are not organized for students on the use of ICT while 564 (64.5%) claimed that periodic training were organized for students on the use of ICT. 467 (53.5%) students indicated that they do not have e-mail while 409 (46.5%) indicated that they have e-mail and 667 (75.9%) students reported that they are knowledgeable in the use of ICT while 209 (24.1%) reported that they are not knowledgeable in the use of ICT.

4.1.3 Research Question Three

What is the difference between male and female senior secondary school students' perception towards the availability of ICT for educational purpose?

Analysis of the research question was made using the data presented in table 4.1. From the analysis in table 4.1 it was discovered that majority of the male and female students agreed that computer set is the most available ICT facility in their schools. While majority of the students disagreed with the availability of other ICT facilities such as internet facilities, scanner, projector, television set, radio etc. in their schools.

4.1.4 Research Question Four

What is the difference between male and female senior secondary school students' perception towards the use of ICT for educational purpose?

Table 4.3: Percentage table showing males and females students' perceptions towards the use of ICT

Items	MALES				FEMALES			
	SA	A	D	SD	SA	A	D	SD
I use ICT to gain easy access to study materials	12.8	19.9	30.0	37.3	12.9	18.6	42.6	25.9
I learn lessons through educational software	44.3	25.1	22.9	7.6	70.3	11.5	8.9	9.3
I use internet facilities to do assignment	86.9	11.9	0.6	0.0	75.8	22.4	1.8	0.0
I use ICT to learn new skills for solving academic problems	33.0	23.2	22.3	21.4	50.8	26.0	19.3	3.8
I use computer educational games to improve my ICT skills	4.9	11.6	39.4	44.0	25.7	35.2	22.8	16.4
I use ICT facilities to improve my communication skills	33.9	26.9	21.4	17.7	47.7	33.7	17.1	1.5

I gain some knowledge listening to radio education programmes	31.8	14.7	28.7	24.8	20.8	37.5	31.9	9.8
I use computer to type school assignment	22.0	15.0	26.3	36.7	32.2	39.7	23.0	5.1

The results in the table 4.3 shows the extent of utilization of ICT facilities for learning purpose by students of secondary school II in Minna Niger State. From the result it was observed that majority of the male and female students have negative perception with the use of ICT for gaining access to study materials while it was noted that both genders have positive perceptions on majority of the items listed in the table.

4.2 Testing of Hypothesis

HO_1: There is no significant difference between male and female senior secondary school student's perception towards the availability of Information and Communication Technology for educational purposes in Minna, Niger State

Table 4.4: t-test showing availability of ICT facilities in senior secondary schools

Gender	N	Mean	SD	Df	t-cal	t-table	p-value
Male	327	76.5	79.2				
				18	0.619	1.734	0.05
Female	549	98.9	82.58				

The result in table 4.4 shows that the t-cal (0.619) is less than t-table (1.734) at 0.05 level of significance. The null hypothesis was not rejected. Therefore, there is no significant difference between male and female senior secondary school II students' perception towards the availability of Information and Communication Technology for educational purposes in Minna Niger State. The female students have a higher mean score than their male

counterpart which implies that the female-based schools have more ICT facilities than male based schools.

***HO_2*:** There is no significant difference between male and female senior secondary school student perception towards the use of Information and Communication Technology for educational purposes in Minna, Niger State.

Table 4.5: t-test analysis of the level of exposure of male and female students towards the use of *ICT*

Gender	***N***	***Mean***	***SD***	***Df***	***t-cal***	***t-table***	***p-value***
Male	284	33.7	24.9	14	0.694	1.761	0.05
Female	416	42.0	23.02				

Table 5 shows that t-calculated (0.694) is less than t-table (1.761). The null hypothesis is not rejected. Therefore, there is no significant difference between male and female senior secondary school II students' perception towards the use of Information and Communication Technology for educational purposes in Minna Niger State. The female students had a higher mean score (33.7) than their male counterparts. This implies that female students are more exposed to ICT than the male students of in the schools.

4.3 Discussion of Results

The results of the study were discussed based on the general questions, research questions and the hypothesis as follows: On the issue of availability of ICT facilities in senior secondary schools, the findings revealed that computer is the major facility available in most of the schools, all other ICT identified equipment are not available. This does not agree with Mohammed (2006) who observed that ICT equipment like camcorders, data projectors, internet, and video players are adequate and available in the various schools where they carried out their research.

On the issue of exposure of students to the use of ICT in schools, the findings show that majority of the students have an average level of exposure to the use of ICT facilities for many educational purposes except for sourcing materials where a low level was recorded. The low level of exposure of the students might not be connected with the non-availability of the ICT facilities in the schools. This does not agree with the findings of Jimoh (2007) that the capacity to use ICT by the students in the teaching-learning activities was very low.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary of the entire work, conclusion drawn from the study and offer recommendation for further research.

5.1 Summary of the Work

Chapter one provided the background to the study. The central objective is to investigate the perception of senior secondary school student towards the availability and use of Information and Communication Technology ICT for educational purposes in Minna, Niger State.

In chapter two, review of related literature was made. The concept of Information and Communication Technology, concept of ICT in education, advantage of ICT in education, availability and usage of ICT facilities for educational purpose, gender influence in ICT usage etc. were all discussed in the chapter.

Chapter three presented the methodology that was used in collecting data for the study. Design of study, population of the study, sample and sampling techniques, research instrument, validity of the Instrument, administration of instrument, and method of data analysis were made in the study.

Chapter four presented and analyzed the data that was generated for the study. This study found that the students have negative perception towards the availability of ICT facilities in their schools while the students maintain a positive perception towards the use of ICT facilities except in a few aspects.

5.2 Conclusion

Based on the findings of this study, it could be concluded that ICT facilities are not available for the teaching in secondary schools. Factors such as low funding, cost, low level of

internet connectivity, weak infrastructure, lack of skills, were observed to be factors affecting the application of ICT for educational purpose. Application of ICT in teaching and learning has the potential to offer effective learning an understanding among students of secondary schools in Minna, Niger state thereby improving their performance academically.

5.3 Recommendations

Base on the finding of this study, the following recommendations were made:

i. The current level of students' exposure to ICT should be sustained while efforts should be made to provide adequate and effective ICT infrastructures.

ii. Teachers should be trained on the use of ICT facilities and be provided technical supports when the need arises.

iii. Besides, teachers should be made to utilize ICT facilities in teaching process. They should also guide the students on how to access learning materials using ICT facilities.

iv. Government should increase financial allocation to schools to enable them provide the necessary ICT facilities for usage in their schools.

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