INFORMATION COMMUNICATION TECHNOLOGY INTEGRATION IN TEACHING AND LEARNING PROCESS IN SECONDARY SCHOOLS IN OGUN STATE

BY

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CERTIFICATION

This is to certify that **Abdulkareem Ayishat Y.** with Matric Number **18012102006** of Primary Education carried out this research project under my supervision.

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Okusanya O.A **Date**

DEDICATION

This research work is dedicated to Almighty Allah for his continuous mercies upon my life. To my dear parent Mr. and Mrs. Abdulkareem and my lovely brother and sister.

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ABSTRACT

The study focused on the information communication technology integration in teaching and learning process in secondary schools in Ogun State. The The population of this study comprised of fifty (50) students and fifty (50) teachers in Ijebu Ode Local Government. The instrument used for data collection was structured questionnaire; data were analyzed using simple percentage method F/TN x 100. The findings of the study revealed that the uses of information communication technology are available and it improves the teaching and learning of secondary school. Also, lack of adequate skills, poor maintenance and poor electricity hinder the uses of information communication technology in secondary school. Based on the findings, the researcher recommend that government should ensure ICT policy statements are translated into reality and provision of electricity and other necessary materials in order to make use of information communication technology effectively in secondary schools.

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CHAPTER ONE

Introduction

1.1 Background to the Problem

The Nigerian National policy on Information Technology define Information Technology to include any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement control, display, switching, interchange, transmission or reception of data or information. Information and communication technologies (ICT) are electronic technologies used for information storage and retrieval. Development is partly determined by the ability to establish a synergistic interaction between technological innovation and human values. The rapid rate at which ICTs have evolved since the mid 20th century, with its convergence and pervasiveness give it a strong role in development and globalization (Nwagwu, 2016). ICTs have a significant impact on all areas of human activity (Brakel and Chisenga, 2013).

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 its benefit to the quality of education (Al-Ansari, 2006). ICTs have the potential to 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,2009; Yusuf, 2015).

Students who use ICT 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, 2012). Students have reported that they benefit more when they are left to interact with computers. ICT has a well organized layout, the instructions were clear, and that the theme was fun or motivating (Kay, 2007). ICT that utilize a visual dimension, including digital video, photography or video conferencing are found to be engaging for students (Condie& Munro, 2007). They provide a stimulus for collaborative working and discussion amongst fellow students and teachers that enable the students to take control of their own learning process. These technologies appear to be especially effective when used with groups of students with special or additional needs. In addition, through ICT, students extend and deepen their knowledge, investigation, and interest when access to information is available on multiple levels (CEO Forum on Education and Technology, 2011).

Adeogun (2013) emphasized that ICT have broken the barriers of time, distance and location which use to impede the growth of formal education. Information and Communication Technologies have also had profound impact on the tasks and skills of teachers in both the pattern and quality of lecture delivery (Mogbo, 2012). Rapid development of ICT has led to many changes in the responsibilities of the academics in tertiary institutions. The traditional methods of carrying out academic work are

fast becoming inappropriate. Ehikhamenor (2012) stated that ICT are changing the ways in which academics seek information, communicate with each other, conduct research and distribute research results. All these point to the fact that Information and Communication Technologies are very important for effective teaching, learning, and research activities in an academic environment.

Concurrently, nations of the world have the obligation of giving her citizens basic education. Basic education is essential for an individual to be able to access and apply information. The Economic Commission for Africa (ECA) has indicated that the ability to access and use information is no longer a luxury, but a necessity for development. Unfortunately, many developing countries in Africa, especially Nigeria are still low in the integration, application and use of ICT in their educational curriculum (Esther & Michael, 2011). The National policy on education on secondary education also recognizes the prominent role of Information and Communication Technology (ICT) in knowledge advancement and therefore noted that Government shall provide necessary infrastructure and training for the integration of ICT in the school system. In relation to this, the first mission statement of the national policy for Information and Communication Technology is to use ICT for education. It further has integration of ICT into the mainstream of education and training as one of the general objectives. This will undoubtedly be an innovation in the Nigerian educational system; Nigeria's ICT policy's vision statement is to make Nigeria an ICT capable country in Africa and a key player in the information society by

the year 2020, using it as the engine for sustainable development and global competitiveness.

In her education, Nigeria presently runs the 9-3-4 educational system which is broadly divided to three segments of basic education, senior secondary and higher education. Here, the primary and the junior part of secondary education is a compulsion one for all children as embedded in the universal basic education policy which is a derivative of the global Education for All (EFA). In line with the global trend on information technology application in education, the government of Nigeria has integrated its educational use in the general objectives of the national policy on information technology. The sixteenth objective as stated in the policy is 'to integrate IT into the mainstream of education and training'. This also explains why the National policy on Education (2004) specifically stated on secondary education that 'government shall provide necessary infrastructure and training for the integration of ICT in the school system in recognition of the role of ICT in advancing knowledge and skill in the modern world. This indicates that the Nigerian society also recognizes the importance of IT in its secondary education.

Despite government's efforts to encourage integration of information and communication technology (ICT) for teaching and learning among Nigerian students right from the Junior Secondary School level, the performance of students in core subjects at the Senior Secondary School level and tertiary institutions level respectively, is not encouraging (Oludipe, 2010).Higher education institutions, especially those in the West, have adopted ICT as a means to impart upon students,

the knowledge and skills demanded by 21st century educational advancement (UNESCO, (2002a) in Nwachuku, (2009)). According to Nwachuku (2009), ICT now permeates the education environment and underpins the very success of 21st century education. ICT also adds value to the processes of learning and to the organization and management of learning institutions. Also, Technologies are a driving force behind much of the development and innovation in both developed and developing countries. As such, all countries must seek to benefit from technological developments. To be able to do so, professionals have to be educated with sound ICT integration, independent of specific computer platforms or software environments, to meet the required competencies of the ever-changing global environment. This is evidence by a survey conducted by education.au (2008a, 2008b) which found out that secondary school teachers rated infrastructure, bandwidth, equipment reliability and access, alongside limited access to computers or internet connection as barriers to ICT integration. Secondary school teachers indicated infrastructure, bandwidth, equipment reliability and access as well as blocking or filtering of internet content as their most common barriers. However, perhaps the greatest barrier for most teachers in adopting ICT for their classroom teaching was their lack of understanding of the new technology. Equally, Teacher familiarity and professional development with ICT has been found to be low (Freebody, Reimann& Tiu, 2008).

1.2 Statement of the Problem

However, in spite of the expectations of this policy document, i.e., ICT being used in the secondary school teaching and learning, there are indications that point to the fact that computers are not widely used into Nigerian secondary school. For ICT to be successfully used in the secondary school curriculum, it is good for the teachers to have a clear knowledge of the available software packages they can use in their day-to-day teaching. In a study conducted by Forgase & Prince (2012)., "61% of the respondents (Teachers) use spread sheets, 45% used word processing and 30% used internet browsers. In the same survey, it was found that 19% used Geometer's Sketchpads, 19% used CD ROMs that accompanied textbooks, 18% used Graphmatica and 8% used other specific software"

Apart from the lack of knowledge of the available software packages usable by teachers, a good methodical knowledge on how to those software, is another issue of concern on the teachers' perception of teaching through the use of ICT in secondary schools. Furthermore, Jones (2014) discovered that there exist seven barriers to the use of ICT in a lesson. These include the following: 'Lack of confidence among teachers during integration, lack of access to recourses; lack of time for the integration; lack of effective training ; facing technical problems while the software is in use; lack of personal access during lesson preparation; the age of the students. Therefore, this research is to examine the information communication technology integration in teaching and learning process in secondary school in Ogun State.

1.3 Purpose of the Study

The purpose of this study was to determine:

i. extent of students perception of ICT integration in teaching and learning.

ii. extent of teachers perception of ICT integration in the teaching and learning

iii. the barriers to the use of ICT in teaching and learning.

1.4 Research Question

1 What is the perception of students in ICT integration in teaching and learning?

2. What is the extent of teachers' perception of ICT integration in teaching and learning?

3. What are the barriers of using ICT in teaching and learning?

1.5 Scope of the Study

This study will lay more emphasize on the information communication technology integration in teaching and learning process in secondary schools in Ogun State. Therefore, this research will focus on Ijebu Ode Local Government, Ogun State.

1.6 Significance of the Study

This study is very important in various ways. It is expected to identify the perception of students' and teachers' Information and Communication Technology (ICT) integration for academic activities.

The results of this study are expected to unfold the problem which the students face on the use of ICT and electronic resources and how the problem affects their overall performance in school. Knowledge of Information and Communication Technology (ICT)integration and electronic resources will help the Government, school Administrators, Parents and Teachers to start working together towards alleviating some of the problem face by the students in integrating information and communication technology (ICT) for better educational outcome.

This study will also benefit administrators and educators in pursuing knowledge that will assist in determining the important variables as well as recognizing access to ICT infrastructure and resources in successful academic performance.

The study will also help to reduce increased dropout rate in the country (especially for students) that lack ICT skills thus increasing literacy rate as well as level of ICT integration among students and teacher.

Finally, the study will also be beneficial to students as it will enlighten them on the need to take their educational life more seriously especially with the integration of ICT, so as to contribute to the development of science and technology in the country (Nigeria).

1.7 Operational Definition of Terms

Information: it means one or more statements or facts that are received by a human and that have some form of worth to the recipient.

Communication: a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior.

Information And Communication Technology: This refers to a set of combined technologies that will facilitate not only information processing but also its transmission for purpose of teaching and learning.

Computer: This is an electronic device that accepts data in coded form and processes them to give meaningful information.

Integration: This is a combination of parts or object that works together well. It is the process of coordinating separate personality elements into a balanced whole or producing behavior compatible with somebody's environment Encarta (2009).

Junior Secondary School: This is a school which children attend between primary school and secondary school in places which use three or four levels of schooling, typically between the ages of about 10–14 although this varies. More commonly, two levels of schooling are used, with children moving directly from primary to secondary school at about 11 years old.

CHAPTER TWO

2.1 Concept of Information Communication Technology

Information Communication Technology (ICT) to Unagha (2012) encompasses computer and telecommunication. It is concerned with the technology used in handling, acquiring, processing, storing and dissemination of information. Thus Information Communication Technology is any technology used in producing, organizing and passing information through. Similarly, Oxford Advanced Learners'Dictionary sees ICT as electronic media used in processing, analyzing, storing and sending out information. Ademulegun (2013) explained Information Communication Technology as the item of equipment (hardware) and computer programme (software) that allows us to access, retrieve, store, organize and manipulate information. Rouse (2015) defines ICTs as an umbrella term that cover communication devices or applications that include computers, televisions, radios, networks, satellites, video conferencing and eLearning. She also added that ICTs are always talked about in a particular context, like ICTs in education, libraries, health, etc. According to elmoglobal (2014), ICTs in education means teaching and learning using ICTs. Educational ICT tools are divided into three categories namely: input source, output and others. Input source includes such things as Personal computers (PCs), Tablets, applications software, student response systems, visualizer or document camera. Output source refers to such devices as projector, interactive boards, monitors, display, Television. Others include digital camera, digital recorders, switchers and

other technologies. ICTs can lead to improved student learning and better teaching methods. In order to harness the full potential of ICTs in education, a nation must come up with policies regarding the implementation of such solutions. Policies are as important as the technological innovation itself. Policies encompass the master plan of what needs to be achieved within the political, economic and social context (Swarts, 2008). According to an educational site called www.open.edu, ICTs are technologies used for conveying, manipulating and storage of data through electronic means. Examples include the internet, mobile phone systems, television systems and radios. Techterms (2013) defines ICTs as technologies that provide access to information through telecommunications. Examples include internet, wireless networks, cell phones and other communication mediums. It is this researcher‘s view that, in education, both educators and students therefore need to utilize these technologies for purposes of research, lesson preparation, lesson delivery, assignment issuing and submission. These technologies tend to improve sources and quality of information obtained, efficiency and effectiveness and accuracy, which traditional methods did not have. While Nevkar (2012) view Information Technology as the technology that merges computing with high speed communication link camping data, sound and video. It is a communication process in which information (input) is recorded, stored and retrieved process for decision making (output) on planning operation and controlling.

Evey et al (2010) observed that ICT is innovative device that can carry out such functions as receiving, storing, computing, analyzing,

transmitting and retrieving information presented to them and allowing for one-to-one or group communication among humans. Obashoro (2007) identified ICT infrastructure to include multi-media CD-ROMs, MP3 players, websites, discussion boards, emails, computer-aided assessments, learning management software, blogs, etc. In the same vein, Folorunso, Longe and Ijere (2013) identified ICT infrastructure to include internet, World Wide Web (www), Electronic Data Interchange (EDI), Local Area Network (LAN), Wide Area Networks (WAN), Protocols, Content Management and Meta Data Standard (MDS).

2.2 Integration of ICT into Educational Management

It is uncommon to find that many establishments in Nigeria, including educational institutions, still keep records in files and tucked them away in filling cabinets where they accumulate dust. Many of these files are often eaten up by rodents and cockroaches thus rendering them irretrievable. A great deal of routine administrative work in government establishments is still done manually with the State and Federal government showing little or no interest in embracing ICT. The official administrative drudgery in government offices and educational institutions can be better managed through ICT. Educational administrative functions include a wide variety of activities such as educational governance, supervisor, support services, infrastructure, finance, budgeting, accounting, personnel selection and recruitment, training system monitoring and evaluation, facilities procurement and management, equipment maintenance, research and so on (Thomas 2007).

In most Nigerian schools, officials still go through the laborious exercise of manually registering students, maintaining records of students, performance, keeping inventory list of suppliers, doing cost accounting, paying bills, printing reports ad drawing architectural designs. The huge man-hour spent on these exercises can be drastically reduced with ICT to enhance overall management procedure. Thomas (2007), affirmed that "computers bring great speed and accuracy to each of these tasks, along with convenience of storing large quantities of information on small disks or tapes". The prevailing condition in school management in Nigeria is disheartening and discouraging. The country seems to be living in prehistoric times in the educational management while even developing countries in Africa such as Kenya, Uganda and Tanzania are far ahead of Nigeria in ICT applications and integration. Despite its huge material resources and population endowment, Nigeria cannot be counted among progressive nations using ICT in educational management of secondary education, as technology has become a critical tool for achieving success in education.

2.3 Integration of ICT into teaching and learning secondary schools

The importance of ICT is quite evidence from the educational perspective. Though the chalkboard, textbooks, radio/television and film have been used for educational purpose over the years, none has quite impacted on the educational process like the computer. While television and film impact only on the audiovisual faculties of users, the computer is capable of activating the senses of sight, hearing and touch of users. ICT

has the capacity to provide higher interactive potential for users to develop their individual, intellectual and creative ability. The main purpose of ICT "consists just in the development of human mental resources, which allow people to both successfully apply the existing knowledge and produce new knowledge" (Shavinina, 2011). The collective and rigid nature of learning and the passive nature of the learning associated with the use of television and film do not contribute any innovative changes to traditional methods in education system. Information and communication technologies are being used in the developed world for instructional functions. Today, computers perform a host of functions in teaching as many nations are adding computer literacy, reading and writing literacy as skills students will need for succeeding in a technologically developed world (Thomas, 2007). At the instructional level, computers are used by students to learn reading mathematics, social studies, art, music, simulation and health practices.

There is no doubt that ICT provides productive teaching and learning in order to increase people's creative and intellectual resources especially in today's information society. Through the simultaneous use of audio, text, multicolor images, graphics, motion; ICT gives ample and exceptional opportunities to the students to develop capacities for high quality and to increase their ability to innovate. Nigeria cannot afford to lag behind in using multimedia to raise the intellectual and creative resources of her secondary school students. This is particularly important for children whose adulthood will blossom in a cyber environment entirely different from that of the present. Nigerian students need to be taught by radically new educational programme and variety of

educational contents with multimedia playing key role (Nwosu & Ogbomo, 2011).

2.4 Role of Information Communication Technology (ICT) in Education

Every nation has a responsibility to provide education to the children. It is their fundamental right. But it does not mean only the right to access education but right to receive quality education through quality teaching. Historically education was known as a socially oriented activity and a process of empowering society. But in the era of globalization it became socio – commercial activity which started empowering society distinctly by applying combination of traditional and modern approach. ICT in education simply means teaching and learning with ICT. It has become indispensable part of the education system. It has gradually transformed educational society into knowledge and information society which in result transforming economy to knowledge economy and supporting nations to create wealth by exploring knowledge. It is a modern and qualitative technological approach and has a deep impact on education system. It has introduced qualitative changes and increased productivity and changed the overall style and functioning of the educational system and its governance. It has contributed, contributing and will contribute immensely in the development of education.

It is also a universal fact that it cannot replace teachers as they are core part of quality teaching and technology cannot succeed without them. The only thing which can be changed, modified and upgraded is technology, way, method and mode of teaching. These innovative

changes due to ICT forced all the educational participants to think futuristically and educational institutions, administration and teachers must adjudicate their roles, approach and vision accordingly. In technological world industry require manpower with techno managerial skills. To meet the expectation and to cater the demand knowledge economy requires educational institutions to produce graduate who have prerequisite IT and other competitive skills.

Educational institutions have to convert their raw input students to techno management-oriented output. This is possible only with adoption and integration of ICT with teaching and learning. In global competitive era technology is the backbone of everything. By the adoption of Information and Computer Technology (ICT) education became much more effective than past. Researchers, academicians and industry professionals have proved that ICT provide opportunities to all educational participants to learn and excel. Across the world it is been accepted by the educational planners that increased exposure of students to educational ICT through curriculum integration has casted significant and highly productive impact on their achievement. Its exposure improved their knowledge, comprehension, practical skills, presentation skills and innovative capabilities to a great extent. It empowered and enhances the ability, adoptability, knowledge and surviving skills of students and of teachers.

Its instructional use improved the progress and development of faculty and students alike. It optimized teacher's delivery of information and adds value to the processes of learning and the organization and management of learning institutions. It improved the student learning

through self-paced learning and by accessing them to wide range of up to date learning materials. It is facilitating educational participant to acquire and absorb knowledge and increase academic productivity. It is helping nations to enhance educational system beyond classrooms and reaching out to all sect of society in common. It is playing outstanding role in formulating, improvising and executing polices in social, economic, political and educational sector and widening the range of opportunities for students, teachers, industry and poor.

In comparison to other sector impact of Information Communication Technology (ICT) in education is found below to par level. It is due to many explicit and implicit factors. Among the factors most obvious factors are insufficient funding for technological adoption and up gradation, lack of proper training to the teachers, lack of motivation, time constraint, trained manpower in teaching sector and lack of infrastructure in rural area. But due to growing competition in education sector and market demand it is showing progress and educational institutions are gradually adopting ICTs into classroom, learning setting, for developing efficiencies and flexibility in terms of delivery of information's and to provide support for customized educational programs to meet the need of individuals learners. Most of the institutions have adopted internet and www as an essential tool for information communications.

2.5 ICT Facilities available in Education

According to Garai (2006), ICTs cover internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services, and other related information and communication activities. For Chowdhury (2000) and Imhonopi & Urim (2012), ICTs also encompass technologies that can process different kinds of information (voice, video, audio, text and data) and facilitate different forms of communications among human agents, among humans and information systems, and among information systems.

According to Fagbanmi and Ogunjobi (2009), ICT is an umbrella term that includes all technologies encompassing medium for recording information such as Magnetic disk, tape, optical disks (CD/DVD) flash and paper record, technology for the broadcasting, information, radio, television and technology for communicating through voice and sound or image microphone camera, loudspeaker, telephone to cellular phones. It also includes a wide variety of computing hardware, desktop computers, laptops, storage devices etc.

Broadening this conversation, Imhonopi & Urim (2012) argued that ICTs are modern technologies that facilitate information gathering, processing, transmission and storage and comprise hardware and software components that can be put to heterogeneous use through digitalisation connecting individuals and institutions over wide swathes of a geopolitical area. They further asserted that the emergence of ICTs has provided the means for faster and better communication and utilization of

information between and for users, be they individuals, groups, businesses, organisations or governments.

From the definitions array, one could say with the adoption, availability and utilization of the ICTs in tertiary institutions especially the colleges of education, there will be some consciousness of the significant role that ICT can play in teaching, learning, research as well as administrative activities, even though ICT is not fully embraced by most of the higher institutions of learning in our nation Nigeria. Akintunde (2008) added that ICT facilities in colleges of education could give students, lecturers and researchers in developing countries the opportunity to bridge the knowledge gap between them and their counterpart in developed countries.

In the same vein, Anunobi (2005) mentioned that the ICTs available in secondary school include personal computers, telefascimile (fax), network, electro-copying (scanning) and internet. In collaborating with the above, Daniel and Mathew (2010) described the new development as tools for information delivery in the new millennium. They enumerated some tools as follows: internet, worldwide, web (www), electronic mail (E-mail), bibliographic control tools, online searching, creativity and innovations, and the new information professionals.

However, Gama (2008) listed ICT facilities that are expected to be readily available in education for a successful teaching, learning, research and administrative activities. They include computers, internet, television, radio, cassette player and a radio set, fixed telephone set and mobile phone, video machine and a video tape, real of real projector, slide

projector, photocopying machine, duplicating machine, scanner, opaque projector, Email, etc. Okore (2005) believed that ICT have been used to simplify availability and access to information.

However, the various ICT facilities available in colleges of education according to Ofodu (2007) include: computers, overhead projectors, internet, fax machines, CD-ROMS, electronic notice boards, slides, digital multimedia, video/VCD machine, DVD players and so on.

(a) ***Computer:*** A **computer** is an electronic device that manipulates information or data.

It has the ability to **store**, **retrieve** and **process** data. One can use a computer to type documents, send email, and browse the internet. It can also be used to prepare assignments, handle spreadsheets, accounting, database management, presentations, games and more.

(b) ***Overhead Projectors:*** An overhead projector is a variant of slide projector that is used to display images to an audience. The overhead projector facilitates an easy low-cost interactive environment for educators. Teaching materials can be pre-printed on plastic sheets, upon which the educator can directly write using a non-permanent, washable color marking pen. This saves time, since the transparency can be preprinted and used repetitively, rather than having materials written manually before each class. The overhead is typically placed at a comfortable writing height for the educator and allows the educator to face the class, facilitating better communication between the students and lecturers. The enlarging features of the projector allow the educator to write in a comfortable small script in a natural writing position rather than writing in an overly large script on a marker board and having to

constantly hold his arm out in midair to write on the marker board (Wikipedia, 2012).

(c) ***Communication Networks:*** Students and lecturers can communicate with their peers and access data banks in different parts of the country and around the world, in order to develop joint projects, exchange information, or request advice. Instead of the expository presentation of a topic, the lecturer may ask a student, or a team of students, to research the topic by exploring the internet for relevant information.

Though, not all the information on the internet is reliable, but such is the information we gather in the real world, so that students will have to develop their analytical and critical skills. These skills are not usually developed in the restricted environment of the typical lecture hall, where most information has been filtered for them. Teams of students in one country can develop joint projects with teams of students in other countries by exchanging and comparing data on similar or contrasting phenomena.

(d) ***Compact Disc - Read Only Memory (CD-ROMs):*** CD-ROMs are popularly used to distribute computer software, including video games and multimedia applications, though any data can be stored (up to the capacity limit of a disc). Some CDs hold both computer data and audio with the latter capable of being played on a CD player, while data (such as software or digital video) is only usable on a computer (Wikipedia, 2012).

(e) ***Scanners:*** A scanner is an electronic device that captures images from photographic prints, posters, magazine pages, and similar sources for computer editing and display. Scanners come in hand-held, feed-in, and

flatbed types and for scanning black-and white only, or color. Very high resolution scanners are used for scanning for high resolution printing, but lower resolution scanners are adequate for capturing images for computer display. Scanners usually come with software, such as Adobe's Photoshop product, that lets you resize and modify a captured image. Scanners usually attach to your personal computer with a Small Computer System Interface (SCSI). An application such as PhotoShop uses the TWAIN program to read in the image (Rouse, 2010).

(f) ***Digital Cameras:*** A digital camera (or digicam) is a camera that takes video or still photographs by recording images on an electronic image sensor. Most cameras today are digital and digital cameras are incorporated into many devices ranging from PDAs and mobile phones (called camera phones) to vehicles.

(g) ***Photocopiers:*** A photocopier (also known as a copier or copy machine) is a machine that makes paper copies of documents and other visual images quickly and cheaply. Most current photocopiers use a technology called *xerography*, a dry process using heat. (Copiers can also use other technologies such as ink jet, but xerography is standard for office copying.

2.6 Problems Militating Against Integration of Information and Communication Technology in Teaching and Learning in Secondary School

In spite of the numerous importance of integrating ICT in teaching and learning, there exist myriads of problems militating against its integration in teaching and learning in secondary schools in Nigeria. These include

1. **Computer Illiteracy**

This is one of the major problems militating against integration of ICT in teaching and learning. Majority of students and teachers are computer illiterates as such they cannot integrate ICT facilities in their teaching. Confirming this, Mkpa (2005) remarked that a good number of students and teachers are yet to be computer literates and as such are not ICT complaints. Omeje (2006) therefore complained that since majority of the students and their teachers are unable to manipulate computer, they cannot carry out assignments using computer. In the light of the above shortcoming, Ogunsola (2008) emphatically complained that placing technology in the classroom does not ensure that it will be used appropriately or even that it will be used at all.

2. **Lack of Time**

This is one the greatest problems militating against integration of information communication in teaching and learning in Africa. Teachers have so many things to do, since planning instruction to integrate ICT is time consuming, it will be difficult for the teachers to apply it in teaching. Ogunsola (2008) observed that each day teachers find themselves pressed to complete multiple tasks each of which represents competing demands

on their time. Teachers need time to reflect and time to acquire the new skills necessary for integrating technology into the classroom.

3. **Lack of Rural Connectivity**

Many places especially rural areas in Africa are not connected with the internet. This being the case, it is very difficult for secondary schools located in such areas to have access with internet. This militates against integration of ICT in teaching and learning. Noting this, Eyibe (2010) lamented that one major problem facing the growth of information and communication technologies (ICT.

4. **Inadequate Funding**

Computers and other ICT facilities are too expensive to purchase as such not all schools can afford the purchase of ICT facilities. No wonder, Onyeachu (2006) earlier asserted that no organization functions effectively without fund. For ICT facilities to be made available, used and maintained in teaching and learning situations, it requires money. Where the required money is not available or insufficient, ICT facilities will not be purchased. Thus limiting its use in teaching and learning.

5. **Problem of Electricity**

This is another major problem militating against integration of ICT in teaching and learning in secondary school. Most schools especially those located in rural areas are not connected with electricity and even the schools that are connected with electricity, the general problem of epileptic power supply noticed in Nigeria for instance restricts effective use of ICT in teaching. Ezeoma (2002) therefore complained bitterly that since most of the schools in rural areas are without electricity; students in

these areas are denied the tremendous benefits of learning school subjects through the use of electronic instructional resources.

6. **Availability of ICT Facilities**

ICT facilities are in limited supply in all levels of education in Nigeria. Observing this shortfall, Eze (2012) lamented that because of limited availability of ICT facilities, students and teachers know them by name, in theory and not in practice. What a big setback in integration of ICT in teaching and learning in Nigeria.

7. **Problem of Space**

In most secondary schools there is lack of space for installation of computers. This result to principals packing the few available computers given to them in cartons and stores without using them. Eze (2012) emphatically remarked that instructional communication can only be effective when the classroom is well organized, arranged, spaced and equipped. Electrical connections, seats, hardware and software must be made available and enough for ICT in teaching and learning to take place.

8. **Support from School Administrators**

For effective integration of ICT in teaching and learning, school administrators must be in support, but unfortunately in most cases, school administrators do not support the integration rather, they (school administrators) complained ICT activities are costly, hence, no need for bordering oneself about its purchase or its existence in their schools. This militated against integration of ICT in teaching and learning.

2.7 Prospects for the use of ICT in teaching and learning in schools

Akpa (2014) opined that there are numerous and good prospects for the use of ICT in teaching and learning in secondary schools in Nigeria. The following major areas suggested the range of applications that computer can serve teachers and learners in Nigeria:

Firstly, computer can enhance educational efficiency. The efficiency in teaching various subjects could be improved. For instance, many secondary school teachers are already teaching large classes of students. In this situation, students no longer receive the must desired individual assistance. Furthermore, English language is taught and learned as a second language in Nigeria and many teachers of English are weak. It is possible to use carefully prepared computer programs to ensure that learners are accurately and systematically instructed. Also, the computer can enhance problem-solving skills of the learners by focusing on thinking skills especially in subject such as mathematics.

Secondly, computers can serve administrative functions. They can replace the labourious exercise of filing papers in filing cabinets and shelves where records accumulate dust over a log period of time. Another administrative application of the computers is their use for budget planning, accounting for expenditure, writing correspondences and reports, assigning student classes, reporting students' progress and testing students and scoring tests which help to reduce paper work. It is true that many of the tasks above are not effectively and efficiently done in secondary schools in Nigeria.

Thirdly, computers can be used for individualized learning in secondary schools in Nigeria. Due to large classes and differences in

individual learning style and pace, microcomputers will enable the students to progress at his/her own pace and receive continual evaluation feedback and corrections for errors made. In this way, computers allow the development of partner- like interactive and individualized relations with user. Computers play the role of the tutor and present the learner with a variety of contents and symbolic modes.

Fourthly, computers can change current pedagogical practices in secondary schools in Nigeria, which depended heavily on the traditional lecture method. It is universally accepted that computers allow more independent exploration, more personally tailored activities, more team work and more significantly, less didactic instruction. The role the teacher, therefore, changes from information dispenser to that of information manager; from authoritative source of information, to a guide of self-propelled explorative (Smith, 2010).

Fifthly, computers will offer the Nigerian teacher improvement in the techniques of research. The cumbersome exercise of searching by hand through the library's card catalog or periodical indexes can be made easier by typing into a computer and the researcher can receive extensive list of related sources of articles in books and journals in just a matter of minutes.

CHAPTER THREE

3.1 Design of the Study

The design of the study is survey. This is because it gives the researcher first hand information in the study and creates avenues for the collection of primary data on a definite research study.

3.2 Population of the Study

Concerning the nature of the this study, the targeted population for this study covered all Secondary School Students and Teachers in Ijebu Ode Local Government Area, Ogun State.

3.3 Sample and Sampling Procedure

For the purpose of this study, fifty (50) students and thirty (30) teachers will be used. Therefore the total number of 80 respondents will be used both teachers and students.

3.4 Research Instrument

The instrument that will be use by the researcher in this study will be a self-design structure questionnaire titled "information communication technology integration in teaching and learning process in secondary schools in Ogun State".

The questionnaire would be in two parts with part A for personal data of the respondents while part B the information on the variables selected for the study. The questionnaire was in line with the modified likert scale techniques summated rating with weight allocation in which

the respondents indicated the extent of agreement or disagreement with the questions stated in the questionnaire.

3.5 Validation of Research Instrument

To ascertain and ensure the face validity as well as content validity of the researchers self design questionnaire it will examine thoroughly by experts in the field before giving it to the supervisor and two others of this research work for correction and input.

3.6 Reliability of the Instrument

The instrument reliability level would be determined by the adopted of test and retest method. The instrument would be administered on five students who were not part of the sample to be used in the main study. The students will be use for the sample of the study.

3.7 Administration of Instrument

The questionnaire would be administered personally by researcher to the respondents and copies of the complete questionnaire will be retrieve through the same means.

3.8 Method of Data Collection

The collection of data for this study would be done by the researcher to distribute the copies of the questionnaire. The purpose of the research study will be explained before distributing the questionnaire and the respondents was given enough time to fill the questionnaire. Later all the questionnaire administered would be collected by the researcher from the respondents after attending to them.

3.9 Problems Encountered During Data Collection

The greatest challenge encountered by the researcher was mostly from the students side. Even though there was a little challenge from the lectures and supervisor for their availability in support of the motion but the greatest challenge was from the gathering of the questionnaire. The students would not want to stay around unless they have a regular school lecture and whenever they do not have lectures like that, they prefer either staying at home or hanging around with friends in a corner, and be making fun.

3.10 Procedures for Data Analysis

The data collected will be analyzed using simple and sampling techniques method. It involved the simple percentage.

With simple and sample techniques method, the expert frequencies are calculated based on:

KEY	**INTERPRETATION**
SA	STRONGLY AGREED
A	AGREED
D	DISAGREED
SD	STRONGLY DISAGREED

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

This is a vital aspect of the research work. This chapter shows the analysis and interpretation of data collected. The answers given to the questions formulated from the research question are expected to evolve from the analysis of the information collected from the respondents through the questionnaires distributed.

This section would evolve tables showing the collected questionnaire which shall show the percentages of responses for easy understanding and application. The response received from the questionnaire has been grouped under four headings; Strongly Agreed (SA), Agreed (A),Strongly Disagreed (SD),Disagreed (D).

4.2 Presentation of Tables

Below are tables computed from the response of each of the questions contained in the questionnaire.

Personal Data of the Students

Table 1: Age Distribution of the Students

Age	Frequency	Percentage
12-14years	17	34
14-16years	25	50

16years and above	8	16
Total	**50**	**100**

Source: Survey, 2020

From the table above, it shows that 17(34%) of the respondents were from 12-14years of age range, 25(50%) of the respondents were from 14-16years while 8(16%) of the respondents were 16years and above.

Table 2: Sex Distribution of Respondents

Sex	**Frequency**	**Percentage**
Male	18	36
Female	32	64
Total	**50**	**100**

Source: Survey, 2020

The table above revealed that 18(36%) of the respondents were male while 32(64%) of the respondents were female.

4.3 Analysis of Questions

Table 4.2.1 Response of Students toward perception of students in ICT integration in learning

ALTERNATIVE	RESPONDENTS	PERCENTAGES
SA	18	36
A	22	44
SD	6	12
D	4	8
TOTAL	**50**	**100**

Source: Survey, 2020

The table shows that 36% of the respondents strongly agree and 44% agreed that ICT expose the student to varied and multisource of information. Also, information communication technology helps every student to learn and study at their own pace while 12% Strongly Disagreed and 8% Disagreed. This shows that the uses of information communication technology in learning enhance good students of students.

Table 4.2.2: Response of Students to the barriers of using ICT in learning

ALTERNATIVE	RESPONDENTS	PERCENTAGES
SA	17	34%
A	22	44%
SD	6	12%
D	4	8%
TOTAL	**50**	**100**

Source: Survey, 2020

Results from the table 4.2.2 above revealed that 17(34%) of the respondents Strongly Agreed that insufficient of ICT facilities and lack of ICT knowledge among students are the major barriers of using Information Communication Technology in learning 22(44%) of the respondents Agreed while 6(12%) Strongly Disagreed and 4(8%) of the respondents Disagreed respectively.

4.4 Teachers Personal Data

Table 1: Distribution of Respondents according to their sex

Sex	Frequency	Percentage
Male	10	33.3
Female	20	66.7
Total	**30**	**100**

From the table above, it shows that 10 respondents representing 33.3% are male while 20 respondents representing 66.7% are female. Therefore, it shows that majority of the respondents are female.

Table 2: Distribution of Respondents according to their age

Age	**Frequency**	**Percentage**
20-24yrs	7	23.3%
25-29yrs	9	30%
30-34yrs	3	10%
35-39yrs	4	13.3%
40-44yrs	5	16.7%
45yrs and above	2	6.7%
Total	**30**	**100**

The table above revealed that 7(23.3%) of the respondents are from age range of 20-24years, 9(30%) of the respondents are from 25-29years, 3(10%) are from 30-34years, 4(13.3%) of the respondents from 35-39years, 5(16.7%) from 40-44years while 2(6.7%) of the respondents from 45 years and above.

Table 3: Distribution of Respondents according to their working experience

Working experience	**Frequency**	**Percentage**
0-4yrs	12	40%
5-9yrs	8	26.7
10-14yrs	3	10%
15yrs	7	23.3%
Total	**30**	**100**

The table above show the working experience of teacher which revealed that 12(40%) of the respondents have 0-4years of experience, 8(26.7% of

the respondents have 5-9years, 3(10%) of the respondents have 10-14years experience and 7(23.3%) of the respondents have 15years of working experience.

Table 4.4: Response of Teacher to Questions

Response of teachers towards perception of teacher in ICT integration in teaching

	Frequency	**Percentage**
SA	16	53.3%
A	12	40%
SD	1	3.3%
D	1	3.3%
Total	**30**	**100**

Result from the table above revealed that 16(53.3%) of the respondents Strongly Agreed that teaching with computer boosts quality of work of both instructors/students. Also, they said they are proficient in the use of a computer system which makes learning interesting, 12(40%) Agreed while 1(3.3%) Strongly Disagreed 1(3.3%) Disagreed respectively.

Response of Teacher towards the barriers of using ICT in teaching

	Frequency	**Percentage**
SA	17	56.7%
A	10	33.3%
SD	3	10%
-	-	-
Total	**30**	**100**

Out of the total number of respondents 17(56.7%) of the respondents Strongly Agreed that lack of personal laptop and some teachers do not have necessary skills and knowledge to implement computer effectively, 10(33.3%) Agreed while 3(10%) of the respondents Strongly Disagreed.

CHAPTER FIVE

5.1 Summary

This study assessed the information communication technology integration in teaching and learning process in secondary schools in Ogun State. It has been found that factors like electricity, poor maintenance, Lack of adequate skills required to integrate ICT into teaching and learning processes, lack of adequate technological tools have effect on the uses of information communication technology.

A survey research designed on the case study population involved in the selected primary schools in Ijebu Ode Local Government which was selected randomly. Questionnaire was administered to gather information and the result was analyses and interpret.

5.2 Conclusion

Information Communication Technology 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.

The adoption and use of Information Communication Technology in education have a positive impact on teaching and learning and also provides a wider access to education. It also has some benefits at the primary level of education. However, a lot of effort must be made to avoid the harmful effects of Information Communication Technology on the child's cognitive, social and physical development.

Therefore, the health and safety of students should be taken into consideration when ICTs are used at this level. Student should be prevented from exposure to inappropriate content e.g. internet-based materials of violent or sexual nature which could lead to anti-social behaviour. Where computers are provided student should not be exposed to use of computer for a prolong period.

When deciding to use ICTs, one must always decide the purpose for which the decision is made and what to expect as achievement from the content that will be produced.

5.3 Recommendations

1. Government should organize seminars, conferences, in-service training and workshop for teachers on the use of ICT facilities. Teachers should also engage in weekend and holiday programmes on computer training. Students themselves should engage in computer training after school and during holidays.
2. The government should employ technicians who will be designing software for teachers use. Teachers who were able to use their private time and master the effective use of the software and integrate them in their teachings should be rewarded.
3. Provision of funds for purchase of ICT facilities should be by a combined effort of the three ties of government, parents, philanthropists, and other non-governmental organizations.
4. To tackle the problem of electricity, federal and states governments should ensure that all the schools in both rural and urban areas are connected with electricity. School administrators should ensure

that their schools have generators which are maintained from time to time. Parents should aspire to buy small generators for their children/wards.

5. Parents, Alumni of schools and philanthropists should join hands in providing ICT and its facilities to secondary schools within their localities. This can be done through donation of computer sets, and other ICT facilities.
6. School administrators should ensure that computer laboratories are well organized, arranged, spaced and equipped. Dilapidated buildings should not be used as computer laboratories, large and well ventilated buildings should be set apart for computer operations. This is to enable students and their teachers to have enough space for effective teaching and learning using computers.
7. Every state government should ensure that at least one computer engineer is posted to every secondary school in their states for easy maintenance of the systems. School administrators should as well ensure that they report any case of system damage or inefficiency to the engineer assigned to them without delay.

5.4 Suggestion for further Research

The following suggestions will be beneficial for future research:

This study was concerned with secondary school students and teachers in Nigeria. The sample was drawn from selected secondary schools in Ijebu Ode Local Government Area, Ogun State. A research similar to it can be carried out in other local government so as to ascertain the applicability of the research findings in other contexts. In addition, further research can

be carried out using schools in other geopolitical zones and also, research could be carried out using more than one local government as a study.

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TAI SOLARIN COLLEGE OF EDUCATION OMU-IJEBU OGUN STATE

DEPARTMENT OF PRIMARY EDUCATION

STUDENTS QUESTIONNAIRE

Dear Respondents,

This questionnaire is designed to find out the information communication technology integration in teaching and learning process in secondary schools in Ogun State.

All information provided is for academic purpose only and will be confidentially treated. Please feel free to supply the following to the best of your knowledge by completing the questionnaire.

Thanks.

SECTION A

PERSONAL DATA

Mark the appropriate box to your answer

Sex: Female ( ) Male ( )

Age: 12-14years ( ) 14-16years ( ) 16years&above ( )

School:_____

SECTION B

Instruction:- Please tick (✓) the appropriate option of your choice among the options provided

Keys

SA – Strongly Agree A - Agree SD – Strongly Disagree D – Disagree

S/N	STATEMENT	A	SA	D	SD
1.	Computer sets are available to teach my school				
2.	CD-ROMs, flash drives and diskettes are digital camera, printer, scanner and DVD player are provided.				
3.	Our teachers make of spread sheet on Microsoft excel to prepare result				
4.	ICT appeals to different senses of the body, thereby cater for individual differences in learning.				
5.	It exposes the students to varied and multi sources of information.				
6	Information communication technology helps every student to learn and study at their own pace.				
7.	Information communication technology breaks the monotony of the teacher versus the students classroom lessons				
8.	Online publishing can be used to provide students the opportunity to publish their work in web site.				
9.	Internet-based communication can be used to help students to communicate				

	their ideas to their peers or adults who have agreed to answer their e-mail questions.				
10.	I make use of internet frequently for my assignment.				
11	I don’t have full knowledge of information communication technology				

TAI SOLARIN COLLEGE OF EDUCATION OMU-IJEBU OGUN STATE
DEPARTMENT OF PRIMARY EDUCATION

TEACHERS QUESTIONNAIRE

Dear Respondents,

This questionnaire is designed to gather information on the information communication technology integration in teaching and learning process in secondary schools in Ogun State.

All information provided is for academic purpose only and will be confidentially. Please feel free to supply the following to the best of your knowledge by completing the questionnaire.

Section A

Personal Data

Mark the appropriate box to your answer

Sex: Female ( ) Male ( )

Age: 20-24years ( ) 25-29years ( ) 30-34years ( ) 35-39years ( ) 40-44years ( ) 45years and above ( )

Years of Teaching Experience: 0-4years ( ) 5-9years ( ) 10-14 ( ) 15years and above

School:_____

Section B

Instruction:- Please tick (✓) the appropriate option of your choice among the options provided

Keys

SA – Strongly Agree

A - Agree

SD – Strongly Disagree

D – Disagree

S/N	ITEMS	SA	A	SD	D
1	There is internet connection at school				
2	I only make use of computer at home				
3	I don't have personal laptop				
4	Government provides individual laptop with connection.				
5	I don't have knowledge of internet				
6	Some teachers do not have necessary skills and knowledge to implement computer effectively				
7	I make use of Microsoft word frequently				
8	I don't make use of computer simulation while teaching difficult concepts.				
9	I am proficient in the use of a computer system which makes learning interesting.				
10	Teaching with computer boosts quality of work of both instructors/students.				
11	ICT facilities like the interactive white board and projector are not always utilized by teachers.				

12	Using computer in class can make students more interested in learning				
13	There is a computer laboratory in my school used for teaching.				
14	No of time to prepare computer lessons due to commitments				