KWARA STATE UNIVERSITY, MALETE, NIGERIA
SCHOOL OF POSTGRADUATE STUDIES (SPGS)

AVAILABILITY, UTILIZATION AND MAINTENANCE OF ICT FACILITIES FOR TEACHING AND LEARNING BUSINESS SUBJECTS IN SECONDARY SCHOOLS

Michael Olaitan KEHINDE
15/27/PBE007

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A Ph.D. THESIS SUBMITTED

BY

Michael Olaitan KEHINDE
15/27/PBE007

In Partial Fulfilment of the requirement for the award of Doctor of Philosophy (Ph.D) in Business Education

DEPARTMENT OF BUSINESS AND ENTREPRENEURSHIP EDUCATION,
FACULTY OF EDUCATION,
KWARA STATE UNIVERSITY, MALETE,
NIGERIA

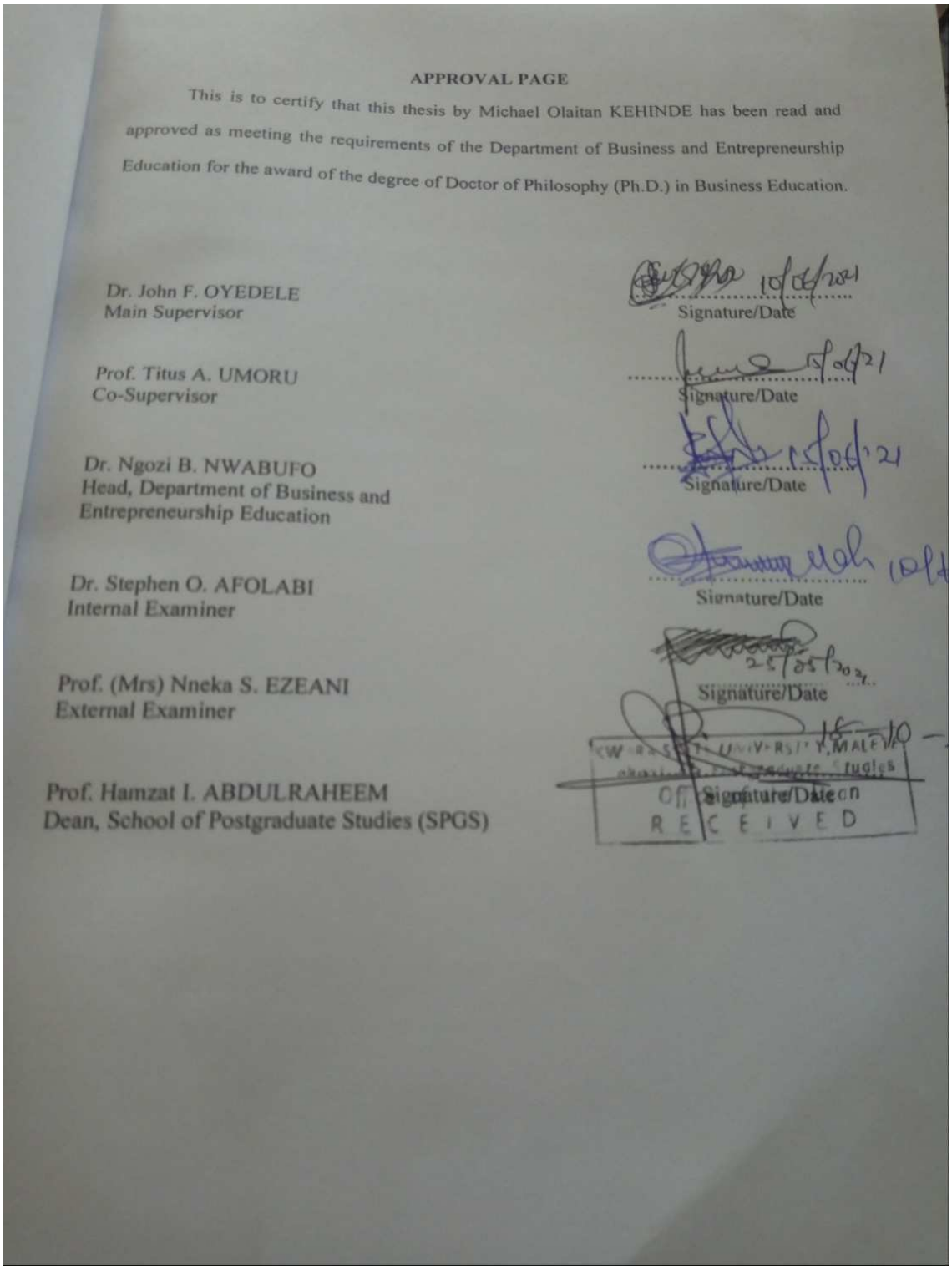
May, 2021

DECLARATION

I hereby declare that this thesis titled Availability, Utilization and Maintenance of ICT facilities for Teaching and Learning Business Subjects in secondary schools in Kwara State, Nigeria, is a record of my research. It has neither been presented nor accepted in any previous application for higher degree.

Michael Olaitan KEHINDE	Signature/Date

APPROVAL PAGE



APPROVAL PAGE

This is to certify that this thesis by Michael Olaitan KEHINDE has been read and approved as meeting the requirements of the Department of Business and Entrepreneurship Education for the award of the degree of Doctor of Philosophy (Ph.D.) in Business Education.

Dr. John F. OYEDELE
Main Supervisor
Signature/Date

Prof. Titus A. UMORU
Co-Supervisor
Signature/Date

Dr. Ngozi B. NWABUFO
Head, Department of Business and Entrepreneurship Education
Signature/Date

Dr. Stephen O. AFOLABI
Internal Examiner
Signature/Date

Prof. (Mrs) Nneka S. EZEANI
External Examiner
Signature/Date

Prof. Hamzat I. ABDULRAHEEM
Dean, School of Postgraduate Studies (SPGS)
Signature/Date

RECEIVED

DEDICATION

This Thesis is dedicated to God Almighty and my immediate family.

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Abstract

The study assessed the availability, utilization and maintenance of ICT facilities for teaching and learning business subjects in Kwara State secondary schools. The researcher adopted descriptive survey design. Six specific purposes, research questions and null hypotheses each guided the study. The population comprised 755 business teachers (402 males and 353 females) and 10,412 students (5,536 males and 4,876 females) in public secondary schools in Kwara State. Proportionate sampling, purposive sampling and simple random sampling techniques were used in selecting the senatorial districts, local government areas, schools and respondents for the study. The sample size was determined by the use of Research Advisor Sample Size Guide Table to select 361 respondents (25 teachers and 336 students). Two researcher's designed questionnaires were used as instruments, one for the teachers and the other for the students. These were duly validated by three experts from the Faculty of Education, Kwara State University, Malete. A reliability value of 0.82 was obtained by means of Cronbach's Alpha reliability method to determine consistency of the instruments. The research questions were answered with mean and standard deviation, while independent samples t-test was used to test the null hypotheses at significance level of 0.05. Findings revealed that many relevant ICT facilities were not available in schools, students have low access to available ICT facilities for learning (mean = 1.37, SD = 0.47), ICT facilities were utilized to a low extent (mean = 1.52, SD = 0.52), teachers have low proficiency in utilizing ICT facilities for teaching (mean = 2.06, SD = 0.65), ICT facilities were barely maintained (mean = 1.72, SD =0.50); but teachers agreed on the strategies necessary for maintaining ICT facilities (mean = 3.90, SD = 0.29). Analysis of hypotheses showed no significant difference in the mean ratings of teachers and students on the available ICT facilities (t_{359} = 1.608; $p<0.05$). There was a significant difference in the mean ratings of male and female students on the extent to which students have access to available ICT facilities for learning (t_{334} = 20.695, $p<0.05$), utilization of ICT facilities (t_{359} = 5.133, $p<0.05$), students' perception of teachers' proficiency in utilizing ICT facilities (t_{334} = 23.142, $p<0.05$), and teachers and students' perception on maintenance of ICT facilities (t_{359} = 6.017, $p<0.05$). No significant difference in the mean rating of perception of teachers on the strategies for maintaining ICT facilities based on qualification ($F_{3,21}$ = 1.74, $p>0.05$) and experience ($F_{4,30}$ = 1.750. $p>0.05$). It was concluded that many of the essential ICT facilities for teaching and learning were not available, those available were not adequately utilized and barely maintained. It was recommended, that Kwara state government should procure and make available appropriate ICT facilities to schools for effective teaching and learning of business subjects. The school heads should allow students access to ICT facilities, make effective utilization of the ICT facilities and encourage adequate supervision and maintenance of ICT facilities for effective teaching and learning.

CHAPTER ONE

INTRODUCTION

Background to the Study

Information and Communication Technology (ICT) is the general tool used across the world which has brought radical changes in the way people live, learn, and work. Information Communication Technology is the umbrella name for new technologies in vogue, a driving force for development throughout the world (Umoru & Okereke, 2016). Osofisan (2009) describe ICT as the product of the marriage that took place between the computer and the telecommunication industry. Osakwe (2012) stated that ICT is a device utilized for gathering, processing, presenting, and transmitting information.

Abiodun-Oyebanji and Omotayo (2012) viewed ICT differently as the component of machine and telecommunication through its collecting, processing, storing, connecting, analyzing data functions, and diffusion of data. The last decade or two have seen remarkable differences in the ways some businesses, governments and educational institutions set their goals, conduct their activities due to the emergence of ICT. It plays very vital roles in the economic, political, and social lives of every nation because it makes information collection, processing, dissemination, and storage very fast, easy, and efficient.

ICT has become a very powerful tool in instruction and training by linking students to global information and inducing innovation in teachers. ICT is considered very crucial instructional material in achieving varied educational objectives in terms of expanding citizenry access to education at all levels, enhancing the quality of education, enhancing learning in formal and informal settings, and enabling lifelong learning. Umah and Nwokike (2016) stated that information and communication technologies are equipment that enables information to be transferred from source to the users which try to overcome natural barriers to information transfer like speed and distance. Today, individual needs at least an elementary

knowledge of ICT and how to make profitable use of it as a student, worker, and citizen. The important function of ICT in education includes developing basic skills in students of information technology to make productive use of it. It is therefore essential for business education students of different age groups, levels, and vocations to possess competencies and skills in ICT utilization for different endeavors.

In a bid to achieve this laudable target, educational institutions, particularly Kwara State secondary schools, are observed to be faced with many challenges in making ICT hardware and software facilities available in schools. Making ICT resources available means the provision of essential ICT tools and machines such as a computer (soft and hardware) and other relevant tools in adequate quantity for students' use (Kaizer, 2019). It is often a great challenge to provide suitable instructional resources for education generally and business education in particular, because of its huge financial involvement. ICT is particularly relevant in teaching business subjects because it serves as veritable tools for commercial and business mobilization in any society as well as provide basic training needed for business management and leadership. Business education is one vital program that can bring about the required liberation and stimulation of citizens for global competition and national development.

The broad aim of business education is to train the youth for jobs and also to help workers update their job skills. The specific aim of the business education program, according to Obiele, Nwazor, and Vin-Mbah (2015) is to educate persons to be intelligent producers and consumers of products and services. It helps students have a clear understanding of a nation's economy. Business education offers courses that provide knowledge and competencies required for entry into various kinds of business occupations and for advancing in them. It covers a host of learning experiences that prepare individuals for office occupations in clerical, distributive business, data processing, accounting, word processing, and secretarial fields. A recipient of business education can fit into or be employed in book-keeping and accounting

jobs, and other office jobs, office technology, marketing jobs and management jobs, distributive jobs (Udoye & Egbule, 2019). The objective of business education can, undoubtedly, be better achieved with the emergence of ICT components which include a computer, internet, automated teller machines, reproductive machines, accounting machines, telephonic systems, point of sale machine, among others.

The utilization of ICT, according to Crossdele, Mbaegbu, and Nwosu (2019), has given birth to new ideas and making an impact not only in the industries/businesses but also in the education sector. Since business subjects at secondary school level provide the students with employment skills that are useful after school or opportunity for higher education. It is essential to help the student develop sufficient skills and abilities in the application of these new technologies to help them wherever they find themselves after graduation.

The issue of gender in the operation of ICT is intertwined with identity, expression, relationships, and societal role and structure, among other things. Male and female learners and teachers utilize ICT facilities. According to Magaji (2018), gender is described as the social characteristics associated with being male or female and the relationships between woman and man. Christopher and Evangelia (2016) believed that factors that have been identified to have a significant influence on students' academic achievement include gender. A gender difference is one aspect of cultural difference that exists between human beings. The cultural practices and gender issues on the use of modern technologies by young people to acquire learning experiences in leisure contexts, through peers, teachers, and school environment afford knowledge acquisition at anytime and anywhere using ICT facilities (Pachler & Seipold, 2010). Gender determines what is expected and valued in a woman or a man in any given context. In our society, there are differences and inequalities between a man and a woman in the task assigned, activities undertaken, access to and control over resources, as well as decision-making opportunities. As far as gender differences are concerned in ICT, there has been little

empirical evidence. Differences in gender is seen in various fields of human endeavor such as religion, business, and politics. The influence of gender difference is equally felt in education such as school enrolment and school dropout rate. According to Fomsi and Orduah (2017), gender differences can be seen in the operation of ICT. With science, the language of technology is a symbol of a masculine task rather than feminine. They argued that most women are reluctant to go to technology because of the sex-stereotyped definition of technology as an activity appropriated for men.

A study on gender revealed that boys are more disposed to use computers and new media than girls (Magaji, 2018). In the view of Adamus, Kerres, Getto, and Engelhardt (2009), females tend to look at computers as social media and are more involved than their male colleagues in chatting. The findings of Temple and Lips (2014) revealed that gender difference is evident in likeness for e-mail among girls than boys while boys, showed a better interest with computer games. The gender differences are an added demonstration that girls see a computer as equipment for executing tasks, while boys, see them as instrument for play and mastery. Such distinction is important for the understanding of how computers are being utilized for teaching and learning in secondary schools.

Again, business subject teachers need to be skilled in the operation of ICT facilities. The teacher's teaching experience is a vital factor for consideration when adopting a systematic planning process of imparting instructions to a learner. Experience has been defined in the Longman Dictionary (2005) as skill or knowledge acquired from performing a task for a lengthy time. The experience of a teacher is vital when planning how to help the learner to acquire new valuable ICT skills. It is, therefore, pertinent that the teacher has both academic and professional qualifications as well as adequate ICT teaching skills, to influence the learners and possibly improve student academic performance (Agharuwhe & Nkechi, 2015).

This simply means that teacher's experience counts when engaging a suitable hand to teach business subjects. An attempt to establish a common notion or belief that the more experienced a teacher is, the more productive he will be in his teaching; and the more likely his students will perform more brilliantly academically in their internal and external school examinations than those students taught by an inexperienced teacher. A common adage says that experience is the best teacher. Experienced teachers are capable of raising students' performance standards than their inexperienced counterparts (Magaji, 2018). This is simply because experienced teachers could bring along, their past teaching experience to bear in the lessons. Teachers tend to improve over time on the job, but not all teachers start their professions with the same level of skill or rise to the same level. The point being emphasized is that experience and productivity are interrelated. The bottom line is that experience enhances effectiveness. Teacher's skill and experience in the operation of ICT facilities is paramount in the teaching business subjects.

Another important factor to consider is the academic and professional qualifications of the business teacher. The level of educational qualification of a business teacher determines his level of proficiency and academic quality. A professionally qualified teacher is someone competent in both the business subjects and the method of imparting the knowledge to others, while a non-professional teacher lacks the various psychological methods by which learning would be facilitated. Professional qualifications are important in education. The professional skill of the teacher starts with a productive classroom atmosphere from the beginning, utilizing a good organization, and carefully planned to teach structures.

Denning (2015) stated that professional qualifications often transform into high-quality teaching with the expectation that this would influence students learning. It should be emphasized that a qualified teacher should know more than the students he is to teach, so as to

be a good source of motivation to learners, and to satisfy his thirst for information and ideas needed for good performance.

Agyemang (2013) asserted that a teacher who possesses both academic and professional teaching qualifications would undoubtedly have a positive effect on the teaching of business subjects. According to Uwadiani and Egbiri (2016), ICT is a veritable instrument in the hands of professionally qualified teacher for improved productivity and sound decision making. For example, mastery of ICT can be explored by competent teachers to ensure meaningful delivery of services, aid effective communication, effective maintenance of student records, and academic planning record systems among others. In school administration too, according to Jaiyeola (2016), ICT can facilitate improvement in school records of the professional teacher and all the activities of the school.

Given the above statements, business educators are becoming more agitated as to how ICT facilities are provided, utilized, and maintained in secondary schools to achieve the desired purpose. It is perceived that factors hindering the attainment of the potentials of ICT include the inadequate provision, ineffective utilization, and lack of maintenance of ICT resources. Hence, Ijagun (2014) asserted that the execution of ICT curriculum is not just giving teachers and students access to computers and computer training but demands drastic changes in course design and delivery systems as well.

It is not enough to procure some computer hardware and peripherals for the school use, it is more important to utilize and maintain the resources appropriately. Maintenance of business education teaching resources is the process of protecting or preserving business education learning machines and equipment, to remain in good working condition when required. The word maintenance, according to Eli, Ogoji, and Robert (2009), means perceiving and keeping in good order, as near as possible, in their original state. By implication, maintenance means retaining in good working order or shape all business education equipment

and materials, in such a way that it will, at all times, benefit the students and teachers. Maintenance is also described by Adedokun (2011) as a way of correcting the anomalies that have developed as a consequence of depreciation. Adequate maintenance is necessary to retain business education facilities in good working conditions in Kwara States secondary schools.

The development of an effective program required for the teaching of business subjects in schools in Kwara State requires a lot of attention to the school facilities for enhanced instruction. Many educational institutions and particularly business education professionals are worried about issues such as the maintenance of aging teaching equipment in our schools. Observation of business education teaching resources in secondary schools indicate that school administrators need to pay serious attention to the maintenance of these facilities to ensure effective and functional education. There is equally a growing consciousness of the role educational facilities can play in shaping attitudes towards the environment, school equipment, and tools; and the contributions they can make towards school image. Without a good maintenance culture of the educational facilities, efforts at providing infrastructural facilities and equipment will amount a waste of resources. Stakeholders and particularly business educators are becoming worried about issues relating to maintenance of teaching equipment and vandalism of training materials, and related expenditure (Hinum, 2014).

The quality of facilities provided equally has an impact; not only on educational outcomes but also on the welfare of students and teachers. There is an increasing awareness of the important role of training facilities in the lives of trainees. Adedokun (2011) observed that it is not enough for facilities to be put in place, but it is even more important to see how these facilities are adequately and properly utilized and maintained to accomplish the objective for which they are meant to achieve. Procurement of inferior and used ICT facilities could cause a great disaster to the learning process with serious implications for the maintenance of teaching resources.

A maintenance strategy is having a standing policy for resource maintenance in the schools, in such a way that equipment is kept in good working order and utilized adequately. Many people handle public school properties carelessly. The attitude of people towards public facilities is rather poor; because they believe, that it does not belong to anybody (Adeleye, 2009). In many cases, facilities meant to benefit the masses are left to rot away; wasted without putting them into any good use; as people are not interested in making such facilities sustainable. According to Adedokun (2011), public facilities do not last long due to a lack of maintenance. Lazarus and Hauptfleisch (2010) believe that failure to maintain teaching facilities properly often results in large and unbudgeted expenditure. Umar and Ma'aji (2013) also stressed that the effectiveness of educational facilities available within an educational system positively correlates with the quality and standard of the educational system. Alonsabe (2011) recommends that the maintenance and utilization culture of school facilities can be reshaped by adopting an adequate policy, strategies, and encouragement for the teachers.

Generally, when modern communication technologies are provided, effectively utilized, and adequately maintained for learning purposes, it is obvious that enhanced quality academic delivery of secondary school subjects will result. Effective teaching occurs when a teacher has imparted the right skills, knowledge, and attitudes to the students. Effective use of instructional materials for teaching promotes critical thinking skills, knowledge, and interest in the subject matter and motivate the learner to learn more. It is against this background that the researcher resolved to determine the availability, utilization, and maintenance of ICT resources for teaching business subjects in secondary schools in Kwara state.

Statement of the Problem

The use of ICT resources in developing countries like Nigeria and across Africa in general is experiencing sporadic increase because of the flow of development indices need adoption of the forces of globalization. Conversely, existing literature reveals a great deal of knowledge about how ICTs are being utilized and maintained in advanced countries, there is quiet not much information on how ICTs are being utilized and maintained in schools in developing nations like Nigeria. A brief look at the world of business today shows clearly the changes introduced into the sector with the use of new technology. The challenge of training students for the new information age and business world seems to be tremendous; since today's students are to spend their career lives in a dynamic technological business environment. The utilization of ICT in the business sector has motivated access and processing of large numbers of information for increasing productivity.

The effect of utilizing ICT in teaching is not yet fully established in Kwara State public schools to address the future challenge. Public secondary schools are yet to meet the Federal Government' Information Technology (IT) policy requirement of 2001, which among others aim at making IT resources available to promote efficient national development, establish and develop IT infrastructures and optimize its use nationwide; empower the youth with IT skills and prepare them for future universal competition and to include IT into the mainstream of education. (Adomi, 2011). Presently, the number of available computers in schools for training, and how they are utilized are unknown. According to Subair and Bada (2014) a little amount of information technology (IT) is being utilized in schools, mainly because of the non-availability of ICT resources and skillful teachers.

Again, observation have shown that inadequate training in the operation of ICT creates difficulties; results in teachers having poor ICT skills, and therefore creates unnecessary difficulty in using ICT facilities. Teachers feel uncomfortable and shy in operating ICT

resources in schools, because of the lack of training required to use the modern ICT resources. Students appear to rely more on textbooks, manual typewriters, and teacher's classroom verbal discussions due to general poor attitude towards innovation and use of modern ICT. The observation on the operation of many schools' activities in Kwara State still show that they carry their documents, examination questions, results, and correspondences to nearby business centers for processing either because the ICT resources are not available in the schools or they do not have the skills required to utilize the available resources. Ajisafe (2014) reported that some schools in other African countries make better use of computers, e-mail, internet, and other office automation equipment to influence students learning positively. This is not the case in most educational institutions in Kwara State. It is yet unknown how many of these ICT facilities are available, utilized, and maintained in schools in Kwara State to improve teachers' productivity and students' academic performance. Observation of some school business laboratories in Kwara State shows that most resources are not utilized, and many are in disrepair state. There are broken down computer hardware and many other types of teaching equipment.

Proper maintenance of ICT facilities, is an essential ingredient if quality education is to be provided for students. A study by Osofisan (2009) on the utilization of ICT for teaching effectiveness in education, revealed the potential of removing the barriers that are causing the problems of skilled personnel development in the country. Inadequate utilization and poor maintenance of ICT resources seems to be the major barriers that demand necessary attention to ensure the quality of instructional effectiveness in business subjects. Inadequate and inappropriate ICT training resources have been pointed out by Babatunde, (2014) as a major challenge to learning. There is an inadequate of information on the actual usage and care of ICT learning facilities for learning in secondary schools. The study, therefore, seeks to identify the type of ICT resources available for teaching and learning, the extent of utilization, and the extent of maintenance of ICT resources in Kwara State schools. The previous studies have not

adequately covered the three variables in a way to meet the ICT skill gap which has resulted in unemployment of youths.

Purpose of the Study

The study is out to investigate the availability, utilization, and maintenance of Information and Communication Technology (ICT) teaching resources in Kwara State secondary schools. Specifically, the study seeks to:

1. identify ICT facilities available for teaching and learning business subjects in Kwara State secondary schools.
2. ascertain the extent to which students have access to the available ICT facilities for learning business subjects in Kwara State secondary schools**.**
3. determine the level to which the available ICT facilities are utilized for teaching and learning business subjects in Kwara State secondary schools.
4. investigate business students' perception of teachers' proficiency in the use of ICT facilities in teaching business subjects in Kwara State secondary schools.
5. examine the extent of maintenance of ICT facilities for teaching and learning business subjects in Kwara State secondary schools.
6. determine teachers' perception of the strategies for maintaining ICT facilities available for teaching and learning business subjects in secondary schools based on academic qualifications and years of experience.

Research Questions

The following research questions were raised to guide the study:

1. What are the ICT facilities available for teaching and learning business subjects in Kwara State secondary schools?
2. To what extent do students have access to available ICT facilities used in learning business subjects in secondary schools in Kwara State**?**

3. To what extent are ICT facilities utilized for teaching and learning business subjects in secondary schools in Kwara State?
4. What are the perceptions of business students' on teachers' proficiency in the utilization of ICT facilities in teaching business subjects in secondary schools in Kwara State?
5. To what extent are ICT facilities maintained for teaching and learning business education subjects in secondary schools in Kwara State?
6. What are teachers' perceptions of the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools?

Research Hypotheses

The following research hypotheses were formulated and tested at a 0.05 level of significance:

$H0_1$ There is no significant difference between the mean ratings of teachers and students on the ICT facilities available for teaching and learning business subjects in secondary schools in Kwara State.

$H0_2$ There is no significant difference between the mean ratings of male and female students on the extent to which students have access to available ICT facilities for learning business subjects in secondary schools in Kwara State.

$H0_3$ There is no significant difference between the mean ratings of teachers and students on the utilization of ICT facilities for teaching and learning business subjects in Kwara state secondary schools.

$H0_4$ There is no significant difference between the mean ratings of male and female students on teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools in Kwara State.

$H0_5$ There is no significant difference between the mean rating of teachers and students on the maintenance of ICT facilities for teaching and learning business subjects in Kwara State secondary schools.

$H0_6$ There is no significant difference in the mean perception of teachers on the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools based on individual academic qualifications possessed and length of teaching with the aid of ICT.

Significance of the Study

The result of the study is expected to be of benefit, when published, to business teachers, students, school management, Kwara State Teaching Service Commission, Kwara State Ministry of Education and Human Capital Development, School Principals, scholars, and stakeholders. The outcome of the study would be of immense benefit to secondary school business subject teachers who are directly involved in the operation of the business education curriculum. It would provoke business teachers to acquire new information and communication technology skills that will enhance their productivity and help them fit into the new information and communication age. It would point out specific areas of need to stakeholders for improvement in terms of maintenance, utilization and provision of ICT equipment, tools, and other ICT peripheral facilities.

The findings of this study would indicate the present level of skill acquired by students and teachers to determine the training needs and which are to be provided by the Ministry of Education and Human Capital Development. The study would indicate the appropriate ICT facilities that should be procured by the government for secondary schools to ensure effective learning and utilization. The outcome of the findings may also give direction to school management as to how ICT facilities should be maintained and utilized in schools. The scholars who read the result of the study would appreciate the educational values of acquiring

information technology (IT) skills needed at the secondary level of education, to equip students for the task ahead. The study would be of interest and beneficial to secondary school students as it would expose them to those ICT facilities they need and master its usage. This can make them skillful and efficient in the use of modern information and communication technologies.

The outcome of the study would also indicate the attention needed to be given to the maintenance of ICT teaching and learning facilities in secondary schools in Kwara State and would also provide a basis for formulating ICT facility maintenance policies that can be adopted in Kwara State secondary schools.

Delimitation of the study

The study was delimited to the assessment of the availability, utilization, and maintenance of ICT teaching facilities in Kwara State public senior secondary schools. Nigeria. The study concerned only with information obtained from business teachers and students from Kwara State public secondary schools. The study was further delimited to information from senior secondary school students, in the SS III commercial class, for the 2019/20 academic session in Kwara State as the target population. This class was chosen because they have been taught with the available ICT resources; as they were the most experienced class in the schools. The targeted students, therefore, were considered to be in a better position in the school to assess the availability, utilization, and care of ICT facilities for teaching and learning of business subjects. It wa also delimited to business teachers' perception of the availability, utilization, and maintenance strategies of ICT resources for teaching business subjects in secondary schools.

Operational Definition of Terms

The following terms are operationally defined:

Maintenance: The act of preserving and keeping ICT facilities in good working order, as near as possible, in their original state at all times, in such a way that it will benefit the students and teachers.

Availability: Provision of necessary ICT tools, equipment, and machines, and other ICT resources for learning and teaching purposes.

Utilization: Act of making effective and efficient utilization of ICT tools, equipment, and machines for learning and teaching purposes, by business students and teachers.

ICT facilities: This is the modern computer hardware and software tools for teaching including various electronic facilities, devices and sometimes using internet facilities for learning purposes of business subjects.

Business Subjects: These are commercial subjects offered at the secondary school level, like Commerce, Accounting, Management, Insurance, Advertisement, Keyboarding, Shorthand, and Office Practice.

Business Subject teachers: These are secondary school commercial teachers who are expected to impart knowledge of commercial subjects to the students with the assistance of ICT facilities for purposes of teaching and learning.

Business students: These are secondary school commercial class students who are expected to learn commercial subjects with the support of available ICT facilities to promote learning.

Academic qualification: This is the level of academic attainment of business subject teachers that them eligible to teach commercial subjects in secondary schools.

Years of teaching experience: This is the number of years a business subject teacher has served in a secondary school as a business subject teacher.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter reviewed literature related to the study and presented as follows under these sub-headings:

Theoretical framework

Stimulus-Response Association Theory (Thorndike, 1896)

Constructivism Learning Theory (Piaget 1925)

Diffusion of Innovations Theory by Rogers (2003)

Conceptual Framework

Concept of Teaching and learning

Concept of student involvement

Concept of Information and Communication Technology (ICT)

ICT Engagement in Teaching and Learning Process

Review of Related Empirical Studies

Availability of ICT facilities for teaching and learning

Accessibility of ICT facilities in Teaching and Learning Process

ICT facilities Utilization in Teaching and Learning

Teachers' proficiency in utilizing ICT Equipment for teaching

ICT facilities Maintenance in teaching and learning process

ICT skills required of Senior-Secondary-School-Students

Teachers' Educational Qualification and ICT Utilization

Teachers' Educational Experience and ICT Utilization

Challenges of Utilizing ICT facilities

Appraisal of the Literature Reviewed

Theoretical Framework

A theoretical framework is centered on an existing theory related to an inquiry or the hypothesis of a study. It is an outline that is often adopted by the researcher as a foundation for the research inquiry. It is the aspect of human effort that is useful to the study. The theoretical framework consists of relevant concept, theoretical principles, tenets of a theory and constructs (Adom, Hussein, & Adu-Agyem 2018). The following theoretical framework relates to the study:

Stimulus-Response Association Theory (Thorndike, 1896)

Edward Thorndike's learning theory began in 1896 with the study of animals and human beings (Lovell & Vernon, 1973). The Stimulus-Response Association theory of Thorndike characterizes the original S-R framework of behavioral psychology. That is, learning is the consequence of associations between response and stimuli. On many occasions, in everyday life, one event follows closely upon another; for example, lightning and thunder; keyboarding, and printing of documents follow one another. In such situations, we tend to associate one event with another. This means that learning is the outcome of links forming between motivations and responses. The principle of association is that, if A and B are presented together in space or in time the subsequent presentation of A tends to evoke B. Moreover, the link between A and B will depend upon the frequency, and vividness of previous associations. The paradigm for S-R theory was, therefore, trial and error learning in which certain responses came to dominate others due to rewards emanating from it. Thorndike's theory consists of three primary laws:

Law of Effect: Responses that are closely followed by contentment are likely

> to happen again when the situation recurs, while responses closely followed by discomfort will be less likely to occur. The state of affairs will be fortified and become customary responses when rewarded.

Law of Readiness: A number of reactions can be chained together to satisfy some objectives which will result in discouragement if blocked but leads to satisfaction if strengthened.

Law of Exercise: Connections become maintained with practice and decline when the exercise is stopped. The consequence of the law of effect is that reactions that reduce the likelihood of attaining a rewarding state (that is punishments, disappointments, failures) will decrease in strength.

The example of Thorndike's S-R theory is the learning of a cat to escape from a "puzzle box" by pressing a lever inside the box. After several trial and error behavior (practice), the cat learns to associate pressing the lever(s) with the opening of the door (R). The S-R connection is established because it results in a nourishing state of activities (escape from). The law of exercise stipulates that the connection was established because the S-R pairing happened many times (the law of effect) and was satisfied (law of effect) as well as forming a single structure (law of readiness).

The relevance of this theory to the study is to develop appropriate skills with the utilization of ICT that requires constant practice of the ICT tools and facilities (hardware and software). The proper use of ICT facilities and tools overtime through personal effort will result in effective learning and production of good documents that can meet the needs of the world of work today (**law of effect/exercise**). A progressive adoption and readiness to use ICT facilities rather than the traditional method of preparing official documents and utilizing office machines would lead to reward for both the learner and the teacher. A gradual movement away from the old method of teaching to the use of current ICT facilities leads to S-R connection; since they belong to the same exploit sequence (**law of readiness**). Transfer of learning occurs because previously encountered skills acquired on manual office machines such as a typewriter are transferred to the new technological automated machines. Real operation of ICT facilities in training and learning settings can sustain various features of information construction in

business education courses; and as more students' make use of ICTs in their learning endeavor, the more distinct the impact of this will become. Skills acquired in the operation of ICT facilities can be transferred to other courses in the school. The outcome of the new skill acquisition would bring satisfaction, reward, and success to the learner and satisfaction to the teacher.

Constructivism Learning Theory (Piaget 1925)

This theory was propounded by Jean Piaget. Piaget states that learning is a function of development. He claims that cognitive development, intellectual development, and development of intelligence are more or less synonymous. Constructivism stresses the importance of the active involvement of learners in creating knowledge themselves. Students are taught to make use of previous knowledge and ideas to assist them in their attainment of new information whenever the learner encounters a new task, but with previous knowledge, there will be a modification in cognitive structure. This change effectively combines previous and new information to form an improved cognitive schema. The process responsible for cognitive development is assimilation and accommodation. In the course of assimilation which is the cognitive process, the individual integrates new knowledge (factual, conceptual, procedural, motor) into existing knowledge or schemata or patterns of behavior. When a child is challenged with a new stimulus, he relies on previous knowledge to tackle the task.

Constructivism finds out why students do not learn effectively by listening to a teacher or reading from a textbook. It believes in designing a stimulating teaching environment that can help learners build on what they already know in the class. A curriculum should be designed in such a way that builds on the learner's background knowledge and allowed to develop with them. Students can gain tremendously from core subjects when a good background in information technology is attained. Students can continue learning on their own through the operation of ICT resources. The teacher only acts as a helper who encourages

students to discern principles for themselves and to generate knowledge by working and answering questions and solving problems with the utilization of the computer. This encourages curiosity and discussion among learners as well as promoting their autonomy. Learners need to be provided with ICT tools and stimulating facilities to work with to achieve the aim of the lesson (Ikegwuani, 2015).

The constructivist view learning as a procedure in which individuals "construct" meaning based on previous knowledge and experience. Experience enables the individuals to form mental pictures or schemas which provide organization and meaning to later experience. Thus, knowledge is not out there but rather, knowledge is generated through an active procedure where the student constructs hypothesis, modifies information, and make decisions using his/her mental models. Educational application of constructions to ICT skills is a method of constructivism known as social constructivism. This form of constructivism emphasized:

> The learner as a principal participant who should be involved in structuring his own learning experience based on his prior knowledge.
>
> The task of the teacher is to instruct the students on those aspects that they would not be able to understand on their own.
>
> Group learning is best done in a collaborative setting with the teacher as a facilitator or guide.

To illustrate this theory and relate it to this study, it is pertinent to emphasize the positive interaction between the teacher and the student concerning awareness and operation of ICT facilities in learning business courses. It is significant to note that the Federal Republic of Nigeria (FGN), (2013) stresses the need to provide employable skills to the students. It states that one of the objectives of business education is to include the acquisition of appropriate skills, abilities, and competencies both mental and physical to the educational program. The

cardinal contribution of business education to the world of work and business growth is the provision of employable skills through its career subjects. These desirable skills are better imparted to students with modern instructional ICT facilities. The business education student, as an active participant, should be involved in structuring his own learning experience based on his prior knowledge.

In line with this theory, Papert has made a significant advocate for bringing technology to the classrooms, starting with his early utilization of the 'logo' language to impart mathematics to teenagers (Cakir, 2008). Constructivism has been used in science and mathematics teaching due to its motivation in the form of inquiry-based science. It is argued that it is also developed in another form in the area of media studies in which students are able to engage with media practice and theory. In 2005, Papert launched one laptop per child initiative to put into practice constructionist learning in the developing world. He aimed to provide laptops for every learner in the developing world (Cakir, 2008). This assertion explains the importance of making Information Technology facilities available for learning.

The adoption of ICT facilities as an instructional plan can conveniently and suitably be adapted to the educational theoretical frameworks of constructivism social learning theory in computer-based learning, virtual learning, distance learning, internet web-based, learning as well as synchronic and asynchronous learning. According to Okoli and Wagbara (2016), these theories view the role of a business educator as one who organizes learning exercises and encourage learning to take place by providing the learning resources required. He believes that the operation of ICT resources encourages collaborative work. The need to produce knowledgeable and skilled business education graduates who can perform effectively adopting ICT resources in the various business organizations in this century, has no doubt, proved the traditional method of instructional delivery ineffective. To achieve effective and efficient

learning process in business subjects, the operation of ICT facilities in training and learning become an imperative panacea.

Diffusion of Innovations Theory by Rogers (2003)

Rogers' Diffusion of Innovations Theory is a commonly used theoretical framework in the area of technology (ICT facilities) diffusion and adoption. Mustafa and Al-Mothana (2013), Zakka (2018) believed that the diffusion of innovation theory is very suitable for investigating the acceptance of new technology in educational settings. Rogers (2003) often used the word 'innovation' to mean 'technology'. According to him, they are synonymous words. The adoption, according to Rogers (2003) is a decision of full adoption of an innovation as the finest course of action and rejection as a decision of not adopting the innovation.

The adoption as decision process requires that the potential adopter collects information regarding the technology, examines the technology, and considers whether the new technology brings sufficient improvement to deserve the investment of time and energy that is needed to improve on the existing range of skills and proficiency (Zakka, 2018). In this case, learners tend to explore the new technology and experience how effective it would fit into their activities before accepting or rejecting the technologies (Rogers, 2003). The theory tries to describe how an invention (new technologies), which may be about an object, idea, or conduct, is embraced for learning and teaching. This theory highlights the valuable process of group change as the key qualities that provide the effective spread of an innovation (Robinson, 2009).

Implementing an ICT program, a new technology, can be achieved by looking at five qualities related to technology (Rogers, 2003). These qualities are:

Relative advantage: The greater the realized comparative benefits of technology, the quicker its rate of acceptance is likely to be;

Compatibility: This refers to the degree to which a technology is perceived as being consistent with the values, part of involvements, and the needs of possible adopters;

Simplicity and ease of use: New ideas that are simpler to understand for the potential adopter are utilized more quickly and rapidly than technologies that require the adopter to develop new skills and understandings;

Trial-ability: It refers to the level to which a technology can experiment on a limited basis;

Observable results: The easier it is for individuals to see the results of technology, the more likely they are to adopt it.

Rogers' theory gives an insight into the human attitude towards the adoption of new technology. It points out that the key elements in technology adoption as the technology itself, communication channel, equipment, time, and social system. The theory goes further to highlight uncertainty as an important obstacle to the acceptance of innovation and suggests that for uncertainty to be reduced, individuals should be well informed about its advantages and disadvantages to make them aware of all its consequences. The theory notes that, of all the communication channels available, interpersonal channels (such as ICT) are more important to change or create a strong attitude believed by an individual. More so, it highlights the major components to the acceptance of innovation as technical assistance and opportunity for a trial of innovation. It puts forward five characteristics of innovation as comparative advantage, compatibility, friability, complexity, and observability and adds that an individual's perception of these characteristics predicts the rate of adoption of innovations. Given this, Rogers' theory helps to understand the desires and perceptions of learners and teachers in utilizing and maintaining ICT facilities. It also highlights how available ICT facilities can influence learning and teaching procedures as well as promoting pedagogical innovation.

This theory is equally relevant in this study because it helps in the determination of the impact of availability, maintenance and utilization of ICT facilities have on the learning and teaching of business subjects.

Conceptual Framework: The following concepts related to the study are discussed below:

Concept of Teaching and Learning:

Teaching and learning is a process that includes many variables. These variables interrelate as learners work to their goals and incorporate new knowledge, performances, and abilities that improve their range of learning experiences. Learning may be well-defined as a desirable change in behavior that is more or less permanent, and which results from activity, training, or observation (Lovell & Vernon, 1973). The behavior change must however persist for a while. In the last century, various viewpoints on learning have emerged among them – cognitive (learning as a mental operation); and constructivist (knowledge as a constructed element arising from the learning process). Rather than seeing these theories separately, it is best to see them together as a variety of possibilities that can be combined into the learning experience. During the integration process, it is also important to reflect many other factors – cognitive style, learning skills, the multiple natures of our intelligence, and learning as it relates to those learners with special needs and is from different cultural backgrounds.

These factors according to Husain (2012), led to the development of teaching strategies called the 6E+S Model of instruction. The 6 E's and S (Engage, Explore, Explain, Elaborate, Extend, and Standards) lesson format was developed by educationists in consultation with teachers from colleges of education and is centered on a constructivist model of teaching. The lesson plans are centered on constructivist instructional models with activities and sections of the plan designed to have additional new knowledge (ICT skills) on over the existing knowledge.

These 6 E's describes a segment of learning, and each segment begins with the letter 'E": Engage, Explore, Explain, Elaborate, Evaluate, and Extend. The 6 E's permits teachers and students to experience common school activities, that could be used to build on past

experience and knowledge, to construct meaning, and to frequently assess their level of understanding of the concept.

Engage: An 'engage' action should make relations between old and new learning experiences (i. e. new ICT teaching skill), speculates activities, and direct students' thinking on the outcomes of current learning activities. Students should be fully engaged in the new process, concept, or skill to be learned. Each lesson plan has an essential question. That is the basis for their inquiry.

Explore: Here the student examines the topic more thoroughly over the internet. What is important is that students are permitted to 'freewheel' their way through the internet and not over directed. The learner may need some guide and the teacher can direct, demonstrate, ask important questions, listening to their discussions, and ensuring that they focused on the task.

Explain: This phase helps students explain the concepts they have been exploring. They have opportunities to express their understanding or demonstrate of new ICT skills or behaviors. This phase also offers opportunities for teachers to present definitions, clarifications for processes, behaviors, skills, or concepts.

Elaborate: Here the learners are required to work on a certain assignment themselves. They are expected to demonstrate their application of new tasks and to present their findings or conclusions to their peers. Students use the time to submit materials for evaluation, do presentations, and complete the projects and assignments.

Evaluation: It is anticipated that evaluation will continue throughout the process of teaching. During the process, the teacher assesses the learning that has happened. The students then submit their work or assignments. At this stage, the students are encouraged to be involved in self-evaluation, group evaluation, and develop their instruments to do so.

Extend: This section deals with suggestions on how to take the students beyond the lesson. The purpose is to examine ways in which they can bring their findings with the operation of

ICT facilities and relate it or apply the understanding to new and unfamiliar circumstances. Normally, this type of activity will grow out of their excitement for what they have accomplished. This section is expected to be highly student-driven though teachers may suggest a useful method of carrying out the task or take their displays to other locations outside the school.

Standards: Lesson plans are currently being standardized. Standards are currently being integrated, lesson plans by lesson plans. The teachers' lessons are compared with the state, and/or national standards. This is an important information for the teacher as the information are necessary for incorporation into the school curriculum.

Concept of student involvement

The theory of student involvement was propounded by Rosenshine in 1982. This theory argues that for a particular curriculum to achieve the intended purpose, it must arouse enough student personal participation and investment of drive to bring about the desired outcome. The theory offers a conceptual alternative for other learning theories such as the subject matter theory of instruction which emphasize stresses that student learning and accomplishment depend mainly on coverage of the correct subject matter; the resource theory also states that if suitable resources are taken together, student development and learning will happen. All these theories tend to place students in a passive role as recipients of the information. On the contrary, the theory emphasizes the active involvement of the learner in the learning process; such as the use of new instructional materials. The implication of this concept is that, with effective ICT utilization in teaching-learning business subjects, both business teachers and students would participate fully in the task. However, students would be encouraged to learn more while the business teacher focuses less on what they do and more on what the students do when ICT facilities are made available and utilized effectively.

Conceptual Framework of teaching and learning are close concepts with learning playing more of a critical role in teaching. It is held that “unless the child learns the teacher has not taught” Rao (2008). Learning and teaching are closely linked processes and are interwoven as well as interdependent. Teaching is a social occurrence, while learning is a psychological occurrence. It is the teaching which usually results in learning but there can be knowledge without teaching. Teachers in the new trend of teaching and learning can be seen as guardian or facilitators and can be very effective in the operation of ICT facilities. The essence of the teaching-learning process lies at the step by step relationship between the eager learner and the competent teacher.

Rao (2008) argued that teaching can be made functional and effective by relating it to teaching objectives and expressing it in behavioral terms so that proper learning environment may be created to attain the desired purposes. The suitable teaching condition may be made for effective learning; the effective teaching aids (ICT tools) may be designated for creating strategies to achieve the optimal purpose of learning. The concept of the relationship of learning and teaching will be an aid to understand the nature of teaching and thereby, teaching theories may be evolved. The knowledge of the connection between the subject matter and ICT can equally help teacher to produce effective business students.

Business subjects or Commercial subjects are academic programs offered in secondary schools. It is designed to offer learning circumstances for skill acquisition among students who could apply such skills in their career, managing a small business, for individual living in the society, and for nation-building. Its workings are therefore a combination of general knowledge and business components. The need for business knowledge has continued to grow and increase rapidly from the era of the industrial revolution in the western world through the era of the Nigerian indigenization policy (Osuala, 2009). Business Education is increasingly demanded to fill the gap which unemployment has created. The skill gap of youths graduating from our

institutions must be filled otherwise social vices and youth restiveness will escalate. There is therefore an absolute necessity to acquire business education skills through a teaching/learning process with optimum utilization of ICT facilities. This is a positive way by which a business education program could attain its goals.

Concept of Information and Communication Technology (ICT)

In Usha's (2010) opinion, Information and Communication Technologies (ICTs) are often associated with the most sophisticated and expensive computer-based technologies. But ICTs also comprise orthodox technologies such as radio, tape recorder, television, and telephone technology. Though definitions of ICTs are varied, it is relevant to adopt the definition provided by United Nations Development Program (UNDP): ICTs are information-handling tools – a variety set of goods, applications, and services that are utilized to create, produce, store, process, exchange, distribute and retrieve information. This includes the 'old' ICTs like telephone, television, and radio and the modern ICTs of computers, satellite, and wireless technology, and the Internet. These different soft and hardware are now capable of working together to form our 'modern networked'– the massive infrastructure of interconnected telephone services, computing hardware, the internet, into every part of the world (Usha, 2010). ICT does not only refer to modern computer and internet-based technologies alone but also simple audio-visual aids such as transparency and slides, television, tape and cassette recorders, radio; video cassettes, and film. The older and more familiar technologies are referred to as "analog media" while the newer computer and internet-based technologies are named the "digital media". Information and Technology (IT) includes technologies such as laptop and desktop computers, software and components, peripherals, and Internet connections that are used to fulfill processing information and communication functions of the modern world (Webb & Cox, 2010). Other meanings of ICT centered on specific qualities, such as access to information through communications including wireless

and other networks. Today, ICT has witnessed a connection that has tangled communications with photography, communication with information access, and software with real-time technology. This has shown in the growing number of hand-held devices that can access the Internet and telecommunication networks.

Engagement of ICT in the Teaching and Learning Process

Education is vital for the growth of a nation. An educated population leads to a productive workforce. In the past few years, according to (Nnaekwe and Ugwu, 2019), the world workforce has witnessed a phenomenal growth in communication technology, computer network, and information technology. The development of a new communication system and convergence of telecommunication with computers have produced numerous possibilities to utilize a number of new technology instruments for learning and teaching purposes. The integration of ICT facilities offers unprecedented opportunities for education structures. According to (Aboderin, 2009), ICT can enhance, and interrelate with each other over a widespread geographic area in a meaningful means to attain the learning goals. The development and contribution of these ICT facilities, their easiness of use, the power of information transfer have allowed students and teachers to have contact anywhere beyond the classroom. It is possible to change the nature and procedure of learning and teaching atmosphere and create a new learning situation. Interactivity, flexibility, and ease of use have become a common phenomenon in the ICT reinforced environment (Nnaekwe & Ugwu, 2019). ICT has created good opportunities for scholarship because it enables learners to contact, modify, and share thoughts and materials in suitable styles and formats. ICT aids the learner to promote collaborative learning principles, promote learner-centered, share learning materials and spaces, and encourage critical thinking, ingenious thinking, and problem-solving skills (Chavez & Jaramillo, (2015).

ICT in education, according to (Nnaekwe and Ugwu, 2019), have created a new universal economy motivated by technology, driven by information, and powered by knowledge. The appearance of this new global economy has an influence on the way and purpose of educational institutions. As contact to information grow rapidly, schools are no longer contented with the inadequate knowledge that need to be transmitted in a short time. They have to become well-suited with the ever-expanding information and also be armed with the technology available with this knowledge. ICT facilities such as radio and television, as well as other newer digital technologies like computers and the Internet - have been confirmed as potentially influential tools for educational reform and change. If used appropriately, ICT facilities can help increase access to education, strengthen the importance of increasing digital workplace, and promote educational quality by making learning and teaching an active process connected to actual life.

Jaiyeola (2016) described ICT in detail as any software and hardware technology that enhances educational information processing. In the context of the present era, ICT facilities mainly comprise of computer technology with its hardware, like, computer machines, telephones, the infrastructure required for setting up Internet facility, and also software like CD ROM including various program packages and E-learning strategies. ICT in teaching is any information technology that centers on the acquisition, storage, transmission, manipulation, management, or reception of data required for educational purposes. For example, the data about their admissions, latest records of their auricular, and co-curricular activities and students' records. ICT in teaching is any technology that has to do with the exchange of idea in the teaching-learning procedure (Aboderin, 2009). The use of electronic learning like, Teleconferencing, PowerPoint slides, CD ROM are Information Technology which form part of ICT. ICT facility in teaching is a training technology that is used in the learning process. It comprises hardware approaches; like the usage of materials and machines, software approaches

like the usage of methodologies and strategies of teaching-learning, and systems approach that uses the technology to deals with the systematic organization of the hardware and the software. There is different administration software, software packages for different departments of education; e.g. library software, and software related to managing the entire teaching-learning process. ICT in teaching is a vital support material in the hands of the business educator involved in the learning process to promote the quality of teaching. ICT in education supports the application of the science of off-line, on-line learning with the help of computer facilities (Aboderin, 2009).

The function of ICT in teaching are numerous. The benefits of ICT in learning and teaching have been well documented by (Osofisan, 2009). The benefits, among others, include easy access to ICT facilities. This helps the students to learn updated content. Teachers too can keep themselves well-informed of the latest teaching-learning approaches and associated technologies. Learning does not remain limited within the walls of educational institutions. Students from different nations can learn together by using on-line and off-line resources. This would result in an enriching learning experience. Such collaborative learning can result in developing a good relationship.

In Nwanewezi's (2013) opinion, ICT has contributed to shifting the focus on learning rather than teaching. ICT assists learners to explore knowledge to learn the content through self - study. The teacher can help the students by ensuring the right direction towards effective learning. According to him, situational learning, programmed learning, many on-line learning courses are few of the examples of self-learning strategies that are being utilized with the assistance of ICT. With this, the individual requirements of the students as per their capabilities and interest can be met. Crowded classrooms have always been a challenge for the teacher to consider the needs of learners in the class. Communication between teacher and learner can be introduced in the teaching-learning process. Off-line learning, on-line learning, and blended

learning are resources that can be utilized in educational institutions. Collaborative learning, individualized learning strategies can improve the quality of group and individual learning. The application of the latest ICT in teaching has encouraged many of the learners to choose the course they desire (Nnaekwe & Ugwu, 2019). Students can evaluate their progress through different quizzes and ready to use online tests. This can ensure the satisfaction of the employment required in the job market thus reducing the problem of unemployment. It can also provide more effective and active citizens to society as a result of the changing needs and interests.

Afshavi, Bakar, Luan. Samah and Fooi (2010) argued why ICT is used so much less in educational management decision-making than in private business. One argument put forward is that it is not being used this way because it would not be useful for increasing productivity and that teachers realize this and resist applying ICT to assessing student learning gains at the school level. This in effect, leads to a situation where data on student performance are not readily made available in schools or how to relate the curricular content or assessment tests to students' achievement. Ajala and Ebijuwa (2010) pointed out that internet access in schools and colleges provide a means of delivering to its-resources and the ability to connect to sites that are beyond the scope of the library collections.

A review of the study of Osofisan (2009) on the uses of information technology for teaching effectiveness in education shows that it has the possibility of removing the barriers that are causing the problems of the low rate of education in any country. According to Ibeneme (2010), the operation of ICT can help learners to ask questions, observe, measure, record and manipulate variables, interpret their results and evaluate scientific evidence; present and communicate their findings in a number of ways. A major benefit of using ICT to teach business education skills is that learners can receive individualized instructions that are well designed, learners work at their own pace, proceed when they are ready, control

their learning path, and review as often as they would and experience an infinitely patient tutor. In Nwanewezi's (2013) opinion, the operation of ICT in gaining knowledge and skills has become an important element in teaching and these ICT elements in the teaching process have magical efforts on the learner. Education without the support of ICT makes the lives of the learner and the teacher equally difficult. The operation of ICT in some schools has changed the method of teaching significantly. According to Mavellas, Wellington, and Samuel (2016), ICT can serve as an instrument for increasing output and taking major decision making. For instance, the ICT can be adopted by secondary school administrators to ensure teachers active delivery of services, effective communication, effective maintenance of sound students record system, and keeping academic planning records among others. ICT can improve or enhance the administrative duties of school principals. In school administration, according to Jaiyeola (2016), the main aim of making ICT facilities available is for the improvement of instruction and learning and all the activities of the school. Secondary school administration involves working along teachers, non-teaching staff, and students to handle issues effectively; this can be done through the operation of ICT facilities. One important question to ask is how much ICT is utilized at public secondary schools today to improve productivity?

Fig I ICT FACILITIES

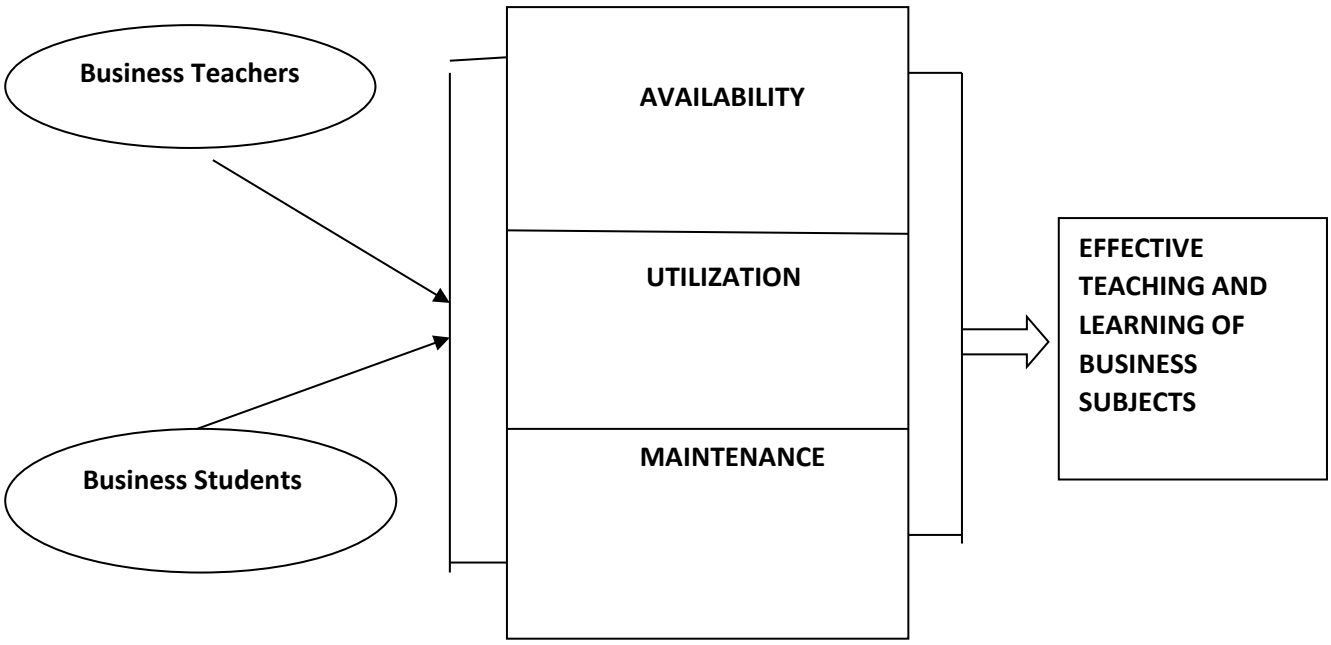

Fig. 1: Conceptual Model on Availability, Utilization, and Maintenance of ICT Facility for Teaching and Learning *(Kehinde, 2021)*

The independent variables of the study are the availability of ICT facilities, utilization of ICT facilities, and maintenance of ICT facilities while teaching and learning of business subjects in public secondary schools is the dependent variable. The moderating variables include students, teachers, and the gender factor.

Review of Some Empirical Studies

Availability of ICT Equipment in Teaching and Learning Process

Availability is derived from the word 'available' which means what one can provide, get, reach, buy, or find. It is the instructional material one may avail oneself with for the accomplishment of a purpose in learning and teaching. The Information and Communication Technology (ICT) facilities are considered important instructional materials in business education. These instructional materials needed should be appropriate for the purpose intended. It is clear that business education is a "doing course" and needs basic and necessary ICT

infrastructures to facilitate the acquisition of skills, competencies that can benefit students (Ikegwuani, 2015).

A new society requires new skills. The new skill requires the effective operation of ICT facilities which are expected to be made available in the right quantity. ICT is increasingly infusing every facet of human life (learning, leisure, work, and health) in many countries. ICT is seen as an excellent tool for information processing. The new group of students needs to become competent in their use and obtain the necessary skills. Therefore, they must have access to the operation of computers and networks while at school. The availability of ICT facilities is paramount in our school system. Information and communication technologies (ICTs) have become a vital part of training all over the world. Most developing nations, like Nigeria, have come to recognize the status of information technology (IT) as a substance for viable socio-economic development.

The need for sustainable socio-economic development has made it imperative for Nigeria as an emerging market to irreversibly consider the promotion and operation of ICT facilities to facilitate her growth and development. The government, in an effort to implement the national policy on education, has emphasized that information and communication technologies (ICTs) be increasingly used and improved upon at every stage of the education system (FRN, 2013). In respect of the relevance of ICTs in instructional processes, the government anticipated the provision of necessary facilities and infrastructures for the implementation of quality ICT training at all levels of the education system in Nigeria (Amiaya, 2016). Idele and Paul (2018) observe that remarkable improvements would take place in every sphere of human endeavors in all societies when ICT facilities are made available. Since these improvements are becoming pronounced in the educational sector, making teaching with ICT facilities available, can make learning more meaningful and functional. Any state, in this country that wishes to attain and sustain meaningful development in education, must entrench

the availability and utilization of ICT the highest level of priority in its visioning, planning, and building process. Many countries are focusing more attention on strategies to increase access to and improve the quality of ICT education for national development. This is achievable by making ICT facilities available in the required number. Information and communication technology has become a requisite part of the modern world and particularly the field of business education. According to Ubogu (2010), the educational system in Nigeria has been affected by the strong influence of ICT. Ubogu (2010) asserted that the availability and utilization of ICT facilities have impacted the quantity and quality of teaching, learning, and research and distance learning education as well. Looking at the contribution of education in changing the lives of citizens in the social provision, operation of ICT facilities will prove advantageous in improving Kwara State's educational system and by implication, promoting students' better education.

For the above reasons, **t**here are various forms of information and communication technology (ICT) facilities that are needed in secondary schools. These facilities include computers, forms of digital communication, electronic education, and other tools that can enhance and enable communication and collaboration among students and teachers. Such communication tools according to Adeyemi (2011) include radio, television, walkie-talkie, satellite systems as well as several services and applications connected with them; such as video-conferencing and distance learning. Ajisafe (2014) listed several ICT tools that can be utilized in schools; such as the operation of computers, e-mail, the internet, and other office automation equipment. ICT, therefore, encompasses a wide range of technology which includes televisions, video recorders, telephone, fax machines, CD players, CD ROMS, personal organizers, programmable and remote operated toys, radio computer among others.

The concept of ICT lies in the availability and use of electronics and other digital means. In support of this, Hawlinge (2010) said that the concept of ICT lies in using electronics and other digital means whi

\ch include the internet to teach and learn in the process. ICT skills involve developing skills in the operation or utilizing computer desk-top, lap-top, palm-top, phone, send e-mail, browse the internet, and make a video call. Onwuachu and Agim (2018) described it as the skills needed to use efficiently the elementary functions of information and communication technologies to retrieve, assess, store, produce, present, and exchange information, and to communicate and participate in a collaborative network via the internet.

The study of Ayelotan and Sholagbade (2014) asserted thatmost of the business education facilities listed in their study were not available in the schools for training purposes. According to the study, the only available facilities were computer laboratories, shorthand laboratories, and obsolete typewriters. The research added that many of the items listed were not adequate in number for training purposes; considering the increased population in the class. Igboke and Okoro (2014) concluded that infrastructures are key components of the business education program, without which the overall goals will not be achieved: that is, the availability of equipment and instructional facilities determines to a great extent students' academic success and skill development. In summary, the study of Igboke and Okoro (2014) gave the following conclusions:

(a) That infrastructures are key components of business education programs without which overall goals will not be achieved.

(b) Educational infrastructure is capital intensive and requires careful planning.

(c) The availability of equipment and instructional facilities determines to a great extent students' academic success and skill development.

(d) Skill acquisition can only be achieved if schools are adequately equipped

based on their pre-determined needs.

(e) There is an urgent need to involve school stakeholders in the provision of educational infrastructures (ICT facilities) because the government alone cannot cope (Chinedu, 2014).

Accessibility of ICT facilities for Teaching and Learning Process

Access to ICT facilities in schools is an essential condition for the integration of ICT in education. Effective integration and adoption of ICT into teaching in school rest largely on the availability and accessibility of ICT facilities such as (hardware and software among others. Where teachers and students cannot access ICT facilities, then they will not be able to utilize them. Where the ICT resources are locked up in the school store, the principal's office, or computer laboratories, teaching and learning will be hampered. Therefore, having access to ICT facilities is a key element to the successful execution of the business education program. Rasaq (2018) findings show that access to ICT facilities is an effective way to teachers' pedagogical utilization of ICT in teaching and learning.

It is an incontrovertible fact that infrastructural (ICT facilities) are paramount to business education. It is clear that in every given assignment, job, task, or work can be effectively accomplished without access to appropriate tools with which to get the work done. Little knowledge would be gained in a learning or teaching environment where needed infrastructures such as computer are not available or accessible (Aiyelotan and Shogbade (2014). Efficient business education graduates can only be produced where necessary infrastructural facilities such as standard furniture items, computer and internet facilities, conducive room, and other modern communication/telecommunication facilities are available and accessible for learning purposes. There is no doubt that inadequate access and inadequate provision of standard ICT laboratories, furniture, and equipment required for teaching can

adversely affect the conducive learning atmosphere expected of an ideal academic environment.

ICT Facilities Utilization for Teaching and Learning

Modern ICT facilities are changing our world and transforming all areas of our lives notable among them is education. Utilization of modern communication according to Umah and Nwokike (2016), enables the students to develop manipulative skills, good communication skills, and a sound basis for scientific and reflective thinking. These accrued benefits can only be realized if the ICT resources are available and properly utilized by teachers in their teaching. In some cases, ICT facilities may be available but not well utilized by teachers to aid teaching in the schools due to lack of skills ins ICT. In support of this, Azih and Nwosu (2012) noted that institutions should properly and effectively utilize teaching equipment for effective service delivery.

In the field of Business Education, ICT can be very useful by helping students to comprehend the course content and learn faster. It can develop intuitive reasoning in the students and make them more interested and knowledgeable in the operation of ICT applications in their various courses. Teaching becomes effective only when the teaching has positive impart, producing the right attitudes, skill, and knowledge to the students. Effective use of ICT for teaching cultivates thinking, improves skills, stimulate interest, and motivate learners to learn. Umah and Nwokike (2016) believe that effective teaching is the teaching that results in learning. This can be achieved with the assistance of the effective operation of ICT facilities. According to Kolawole and Alade (2010), adequate consideration of some crucial learner factors would enable them to scale any hurdle to live up to expectations about them later in life. The agility and intellect in the operation of ICT can make a positive impact on learners when the cultures in which they are reared and the society that nurtured them motivate them to participate in learning activities. This may be attained through the active operation of

ICT facilities. AbdulRahman, Balogun, and Yahaya (2015) identified the following characteristics of effective teaching among others as knowledge of basic principles and procedure, self-reflection, and modification of techniques and flexibility. This goes without saying that, the usefulness of modern communication technologies makes it imperative for business education departments to have modern communication technologies and to make sure that they are effectively utilized and maintained.

Senior secondary school is a middle-level education between primary education and tertiary education. It provides a higher-level education than primary education and also prepares the foundation for tertiary education or to move to the world of work. It takes students six years to complete secondary school, which is made up of 3 years of JSS (Junior Secondary School), and 3 years of SSS (Senior Secondary School). By Senior Secondary School Class 2 (SS2), students are making effort to take the GCE 'O' Levels exam, which is not compulsory, but some students use the exam to prepare for the Senior Secondary Certificate Examination. It is a stage where one needs to decide whether to go for further training or switch to the world of work as junior staff.

The educational system in Nigeria before now was 6-3-3-4 but it is now 9-3-4. This means, three years of junior secondary/three-year senior secondary and four years' tertiary education and now there is a slight change. We now have nine-year basic school (primary-junior secondary/three year's senior secondary/four year's tertiary education. This system of education is similar to that of American high school or fourth to the sixth form in the United Kingdom. Generally, a student spends four years in high school in those countries.

State-owned secondary schools are funded by each state government and are not comparable to the Federal government colleges that are better funded. Although education is public funded in many of the state-owned institutions, but students are encouraged to purchase books, uniforms, and pay for various other things. Teachers employed by State-owned

institutions usually possess a Nigeria Certificate in Education, a bachelor's degree, and few with postgraduate degrees; but this is not often the case, as few secondary schools in Nigeria still engage less qualified teachers who are unable to apply modern technologies to encourage their students (Umar & Ma'aji, 2013). Often, these schools are inadequately staffed because of inadequate state resource allocation, lack of incentives, and irregularities in payment of staff salaries. Many schools find it extremely difficult to procure learning equipment such as computers and ICT tools and facilities to enhance learning and teaching. Few of the public schools that benefited from donations of computers by multi-national companies were either not properly utilized or maintained for the benefit of the students.

To realize the objectives of education fully in Nigeria, and to benefit from its influence on 'the national economy, Government, according to FGN, (2013) shall take necessary steps to ensure that:

a. learning activities shall be learner-centered for maximum self-development and self-fulfillment;
b. instructions shall be practical, experiential, activity-oriented, and Information Technology (IT) supported;
c. education shall be related to overall community needs;
d. all tiers of government shall promote the establishment and support of Reading Clubs in schools, Community Libraries, and other such resources that will enhance effective learning;
e. special provisions and incentives-shall be made for science study at every level of the education system;
f. educational system shall recognize continuing education of citizens; and

g. every child shall be trained in the mother tongue or language of the immediate community for the first four years of basic education. Also, it is anticipated that every child shall learn one Nigerian language.

The purpose of Senior Secondary School (SSS) in Nigeria is also clearly stated in the national education policy as follows among others:

a. Provide holders of Basic Education Certificate with opportunity for higher level of education irrespective of social status, gender, ethnic background or religion.
b. Proposal for diversified curriculum to take care of differences in opportunities, talent and future roles.
c. Offer trained manpower in the applied sciences, technology, and commerce at a sub-professional level.
d. Provide entrepreneurial, technical, and vocational skills for self-reliance, and commercial, agricultural, industrial, and economic development; and
e. Stimulate students with a desire for self-improvement and achievement of distinction (Ikegwuani, 2018).

These and more can be achieved effectively through the implementation of modern information technologies policy in the learning and teaching of business subjects in secondary schools.

Teaching is one of the most challenging occupations in many nations today where education is growing so rapidly that modern teaching and learning require the operation of Information and Communication Technology (ICT). ICT has become, one of the main tools of contemporary society. Many nations now regard the understanding of ICT and understanding their basic concepts as a portion of the greatest vital ingredients of education. According to Kyakulumbye, Olobo, and Kisenyi, (2013), the Uganda government established a full-fledge ICT Ministry in 2006 to stress the status of ICT in promoting economic growth and development. This was initiated to enhance and restructure the growths in the ICT area. The

government of Uganda developed an ICT Policy Framework in 2003 to solve the problems, challenges and harnessing the underlying capacities and opportunities of the system (Kyakulumbye, Olobo and Kisenyi, (2013). The government identifies that ICT has a tremendous role to play in stimulating national growth, in particular, and modernization and globalization of the economy in general. This led to the quick development of the ICT industry in Uganda over the last ten years.

Similarly, Malaysia seems to have had, a long-term vision usually referred to as "vision 2020" which calls for sustained, productivity-driven growth, which is achievable only with a technologically literate, critically thinking workforce prepared to participate fully in the worldwide economy of the 21st century (Chan, 2012). At the same period, Malaysia's National Philosophy of Education calls for increasing the potential of individuals in a whole and unified manner through ICT policy, to develop individuals who are emotionally, intellectually, physically, and spiritually balanced and harmonious.

According to Chan (2012), to achieve the country's goal, an ICT master plan was put in place in line with the country's drive to fulfill Vision 2020. The education system was transformed. The catalyst for this transformation gave birth to ICT-enabled Smart Schools. It was reported that both secondary school students and teachers are capable of utilizing ICT effectively for learning and teaching (Chan, 2012). The effective introduction of ICT into all colleges in the nation was a major project undertaken, but it represents an investment in the future productivity of Malaysia's workforce and a down-payment on the country's future prosperity. This required a major commitment of resources of ICT facilities, but the country benefitted tremendously from the change for many subsequent years. The success of ICT policy according to Chan (2012) in terms of requires support from the government, many stakeholders, including all agencies in the educational system, and sufficient funds to establish and maintain ICT facilities in the schools. In addition, policies, norms, and guidelines were

established to promote the utilization of ICT in schools. Lastly, the report added that continuous professional development for teachers, school principals, and other educational personnel needs was instituted.

Developed nations are widely and intensively using ICT in their education systems. According to Korte and Husing (2012), the majority of senior schools in Europe now have access to the internet and computers in classrooms, though this access still varies greatly across countries and among schools in each country. The operation of ICT also varies vastly across Europe. An Empirical survey of 30,000 head teachers and teachers across 27 countries in Europe reported that 35% of teachers in Latvia have used ICT in their classes, compared with 96% of teachers in the UK (Korte & Husing, 2012). This finding shows that many of the developed countries have continued to apply ICTs in their educational system since the 1980s at all stages of their education system. This has happened according to Korte and Husing (2012) because of the following reasons:

a. ICT has created effective learning environments and improve life-long learning skills habits in the students.
b. The utilization of a computer at an early age helps students learn ICT skills that help as tools in the education process e.g. it was reported that 77% of Swiss students had used a computer several times a week to prepare their courses and assignments.
c. In many nations, the need for economic and social growth is adopted to justify the distribution of resources in educational reform and ICT.

Oyedele and Fadare (2018) argued that since many societies are ICT driven gradually, it is very necessary to keep abreast of the change and make a restructuring in the skill and knowledge given to learners/students. This is important to effectively link between what is being taught in schools today and what is in use in the world of work.

Teachers' Proficiency in Utilizing ICT Equipment for Teaching

Teachers' proficiency in utilizing ICT for learning and teaching is very important. This is essential because the teacher is expected to direct student learning. Improvement in information and communication technology and business activities in this country has continuously presented great challenges to the skills expected of the teacher to execute daily work activities. The speed with which scientific discoveries and innovation are replacing old discoveries has forced teachers to seek and acquire new expertise and proficiencies to keep with time (Ndinechi & Ementa, 2013). Oluwalola (2016) believes that teachers' inadequacy of required skill and knowledge is the main hindrance to the use of ICT facilities in education. Inadequate knowledge concerning the operation of ICT and lack of skill in the use of ICT tools and software has limited the use and performance of teachers in the classroom.

Mahmood, Halim, Rajindra, and Ghani (2014) attributed the inadequate use ICT in schools to several factors. Firstly, they highlighted a deficiency of exposure and expertise on the part of teachers who are computer illiterate, against modern students who are quick to self-education, and highly proficient in the operation of a computer. The second aspect is the forcing of teachers to adopt modern equipment in the classroom without giving them enough time to learn, acquire, and applying the technology appropriately. Another factor identified was absence of confidence amongst teachers, which again is attributed to a lack of professional training. According to Mavellas, Wellinton, and Samuel (2016), there are controllable and non-controllable school factors and teacher issues that affect the utilization of ICT. Non-manipulative factors are that cannot be controlled by the school, which among others, include such factors as age, teachers' experience, and computer experience of the teacher, government policy, and availability of external funding for the school. Manipulative factors refer those the school can influence, such factors include, school obligation towards the implementation of

ICT policy, teacher's attitude towards ICT, teachers' ICT skills and knowledge, and availability of ICT support.

Tony-Okeme (2015) suggested that professional training is necessary for teachers to help them teach effectively with the use of new technology. The ability of a teacher limits his capabilities based on the level of his experience through training and skills learned. Ndinechi and Ementa (2013) believed that the introduction of new telecommunication equipment, electronic mail, computer, and word processors coupled with modern management techniques has changed old work habits and techniques of teaching which in turn require a high degree of proficiency from the teacher. One of the main tasks of a business education teacher is to empower students with desirable skills, knowledge, and values to perform proficiently specific functions to become self-reliant. This can be achieved when the teachers themselves are fortified with desirable ICT skills. Such skill, according to Ndinechi and Ementa (2013), is proficiency in opening and processing application; change paper layout; save and assign file names to documents; merge mails; delete, cut, copy and paste text; merge two or more documents; store and retrieve documents; bold, italicize, underscore, align center and justify text; apply footnote, cross-referencing, headers and footers; use search, find and replace word; apply different font specification; use Thesaurus in searching appropriate word; apply design to word documents such as border decoration, and print document. The ability of teachers in word processing skills will improve the effectiveness of teaching of the course. Furthermore, teachers' proficiency in handling technology will help learners meet the expectation of business enterprises and industries through reading and listening to experts in the field.

The study of Etonyeaku (2013) is on the use of ICT in business teacher education programs. The study highlights twenty ICT tools/facilities that are very essential for the acquisition of required skills. These ICT resources are expected to be made available and utilized by teachers when teaching business education students. These instructional materials

according to the author, include Tape Recorder (audio cassettes), Videocassette recorder, Computer laptops, overhead projectors, Electronic mail (e-mail) facility, World wide web, Application of software, Video conferencing, Mobile/smartphones, Radio, Television, Slide projectors, Facsimile, Computer Desktop and printers, Scanners, Internet and local area work, Video and Audio Conferencing, Technological magazine, Digital cameras, and Electronic chalkboard.

Ugeh and Akpotohwo (2010), Etonyeaku (2013) equally stated that ICT can help to develop teachers' competencies and that business education teachers should be properly trained in the relevant ICT competencies and knowledge and with attractive benefits. The present rate of use of those facilities as indicated in their study cannot encourage meaningful teaching and learning by students as only a few of the identified ICT teaching facilities were used. This kind of scenario cannot deliver the expected transformation to produce quality graduates in business education. The study also established that ICT tools/facilities identified were not effectively utilized in teaching in the schools studied.

ICT Facilities Maintenance for Teaching and Learning Process

Maintenance is the process of protecting or preserving business education teaching and learning machines and equipment to remain in good working condition. The word maintenance, according to Eli (2009) means perceiving and keeping in good order, as near as possible, in their original state. By implication, maintenance means keeping in good working order or shape all business education equipment and materials in such a way that it will benefit the learners and the teachers. Maintenance is described by Adedokun (2011) as a method of correcting inadequacies that have developed as a result of age and use. ICT maintenance according to Afshavi et al. (2010) is considered as the set of all actions which have as an objective to retain the original value of the equipment, an item (or the whole system) in, or restore to, a condition in which it can perform the expected function. The actions include the

grouping of all technical, managerial and connected administrative and supervisory actions such as tests, replacements measurements, repairs and adjustments. The term covers such function as fixing of difficulties (bugs) which might be present but not noticed during acceptance test(s), as well as changing to a new environment.

Since Information technology comprise school assets, ICT-maintenance is not significantly different from the maintenance of other school assets (e.g. machinery maintenance and in most of the cases is (or should be) based on contract maintenance with the ICT equipment suppliers; especially when it is newly supplied.

The school needs a maintenance culture to ensure quality teaching and learning. Culture is a way of life, custom, tradition, or habit that is put in place to ensure adequate care and maintenance of business education facilities in secondary schools. The development of an effective program for the teaching of business subjects in secondary schools requires a lot of attention to school facilities maintenance for good instructions. This is important because the trainee, in turn, will go out to the world of work. Many educational institutions and particularly business education professionals are concerned about strategies by which maintenance of aging teaching equipment and particularly ICT facilities are carried out. Observation of Business Education facilities in secondary schools in Kwara State indicates low maintenance. The attitude of some school management leaves much to be desired as school management does not pay any serious attention to their maintenance; whereas teaching facilities are regarded as vital organs for effective and efficient functional education. There is equally a growing consciousness of the role ICT facilities can play in influencing attitudes towards the environment; ICT facilities can contribute significantly towards school image. Parents tend to prefer sending their children to schools equipped with ICT facilities than those without any. Without an effective maintenance culture of educational facilities, efforts at providing infrastructural facilities and equipment will amount to a waste of resources. Many

communities and particularly business educators are becoming worried about issues relating to the maintenance of aging teaching equipment and vandalism of school training materials and other related expenditure (Hinum, 2014). The quality of facilities has an impact not only on educational outcomes but on the welfare of students and teachers. There is an increasing awareness of the important contributions instructional materials play in the life of trainees. Adedokun (2011) stressed that it is not enough for facilities to be put in place, but it is more important to see how these facilities are effectively and appropriately maintained so that maximum benefit can be derived and the purpose for which they are obtained are attained.

Maintenance culture is an approach that is seriously lacking in Nigeria whether in the school, home, office, or factory. Many people handle public school properties carelessly. The attitude of people to public facilities is that it does not belong to anyone (Adeleye, 2009). In many cases, facilities meant to benefit the masses are left to rot away; being wasted without being put to any good use. The result according to Adedokun (2011) is that public facilities do not last long due to inadequate maintenance. The consequence of this is that infrastructural facilities (such as ITC facilities) will amount to a waste of money expended on them. The degree to which members of a department value and take care of business education facilities is determined by the belief of business educators themselves about the worth and significance of the machines. The study of Nwanewezi (2013) revealed that several factors hindered the effective operation of ICT instructional materials and consequently effective learning and teaching in schools in Niger State. The limiting factors include an insufficient number of ICT equipment for teaching, irregular maintenance of ICT equipment, lack of alternative standby power supply to ICT laboratory, insufficient ICT teaching consumables, and lack of multimedia teaching aids. Others include frequent breakdown of ICT equipment, poor maintenance and repair culture, inadequate training and re-training of teachers, poor funding and neglect of the business education department, and ineffective utilization of available

laboratory for student practical lessons. In support of this, Uchendu, Ekanem, and Jonah (2013) said that one of the fundamental ways of ensuring the optimal utilization of available resources is through maintenance culture. The maintenance culture of any business education machines and equipment speaks much about such a department. The good quality of a business education program, or any program for that matter, is largely dependent on the provision, utilization, and maintenance of educational facilities. Asiyai (2012) recommended breakdown maintenance, corrective maintenance, and preventive maintenance as the three major types of maintenance which school administrators should adopt for the effective performance of school facilities.

ICT Skills required of Senior-Secondary-School-Students

Improved secondary education today is essential to the creation of effective human capital for the nation. Certainly, global educational challenges nowadays cannot be solved by conventional means like the provision of building classrooms and training a large number of teachers. Rather, it is exploring and adopting the potential of new ICT for education which has become a must, for the current innovation in education. The keywords in the educational system are knowledge, pedagogy, and structural innovation (Chukwumezie & Nwogwugwu, 2013). Training in business education greatly relies on the adoption of ICT into the school system for knowledge, pedagogy, innovation, and quality service delivery. Many organizations have seen the need to train and retrain their workers to increase their knowledge and usage of computers and other ICT facilities. Managers, no doubt, rely on competent personnel and skillful office workers to maximize their effectiveness in achieving organizational goals. This, therefore calls for the early attainment of ICT skills by secondary school students who will eventually fill positions in those organizations. The ability to use the computer effectively has become an important part of education. Skills such as book-keeping, clerical and administrative work, stock-taking, and others now constitute a set of computerized practices that form the core ICT packages – Excel spreadsheets, word processor, database among others.

The utilization of ICT according to Chukwumezie and Nwogwugwu (2013) allows individualized student learning in schools, students have access to facilities that adjust to their needs. Students can share information among peer groups and provide valuable and immediate feedback for literacy enhancement, which are not currently fully implemented in many schools in the Kwara State school system. There is no doubt that ICT application and utilization in schools will prove beneficial to the enhancement of the worth of education in Kwara State.

The study of Chukwumezie and Nwogwugwu (2013) shows the networking knowledge and ICT skills required of senior secondary school students in Orlu Senatorial Zone of Imo State in the following areas: practical knowledge in the network, ability to connect to the Internet, use of electronic mail, knowledge of telecommunication terms, knowledge of how to use group address for e-mail and on-line conference. The expected knowledge by secondary school graduates in Media communication includes producing electronic slides, use of painting and drawing tools, the use of digital camera and scanner, production, and editing videos. The following additional ICT skills are also considered important in promoting teaching and learning:

a. Automated teller machines skill
b. Point of Sale Machine (POS) skill
c. Projector Operation skill
d. Operation of Scanners skill
e. Operation of Internet facilities
f. Social Networks skills
g. Modems skills
h. Downloading software from the web
i. Educational copyright knowledge
i. Word Processing skill
j. Spreadsheet Skill
k. Database skill
l. Electronic PowerPoint presentation skills
m. Web Site Design skill
n. E-mail management skill
o. Digital Cameras skill
p. Video-conferencing skill
q. Computer printer operation skill (Hawlinge, 2010).

Gender is an important variable in learning and teaching and could produce differences in individuals. The importance of gender in education cannot be ruled out. Gender is connected with identity, expression, relationships, and societal role and structure, among other things. According to United Nations (2008) in (Magaji, 2018) gender denotes the social attributes and

opportunities associated with being male or female and the relationships between girls and boys, and the relations between women and those between men. Agharuwhe and Nkechi (2015) believed that grades and test scores do not necessarily reflect the quality of instruction from the teacher because the teacher's class instruction is not the only factor influencing students' academic performance. Other factors that have been identified to have a significant influence on students' academic achievement include peer effect, race, ethnicity, motivation, income, as well as family background variables such as household environment, parental education, and gender (Christopher & Evangelia, 2016). A gender difference is one aspect of cultural difference that exists between human beings. The cultural practices and gender issues on the utilization of new technologies by young people to acquire learning experiences in leisure contexts through peers, teachers, and school environment termed "hidden curriculum" is esoteric learning in nature, and afford knowledge acquisition at anytime and anywhere using ICT facilities (Pachler & Seipold, 2010). Gender determines what is expected and valued in a woman or a man in any given context. In our society, there are differences and inequalities between a man and a woman in the task assigned, activities undertaken, access to and control over resources, as well as decision-making opportunities. As far as gender differences are concerned in ICT, there has been little empirical evidence. One opinion argues that there are gender-specific behavior patterns that may suggest discrimination against women using ICT in learning and teaching.

The study of Temple and Lips (2014) examined sex differences in the utilization of computers by asking girls and boys at early and late stages in secondary education; what they liked best and least about using computers at school. The findings revealed a greater interest and work orientation for e-mail is obvious in girls' responses. Males showed a greater attraction to computer games and declared limitations in access to machines more. These gender differences show a further clarification that girls approach computers as apparatuses for

achieving jobs, while boys approach them as equipment for play and mastery. Such distinctions are important for the understanding of how computers are utilized in educational settings (Magaji, 2018). Adamus, Kerres, Getto, and Enelhardt (2009) studied gender differences in men and women. The study shows that women tend to see computers as social media and they are more involved than men in communicative activities. The study shows that girls have more positive attitudes towards ICT than males. There were major gender differences where girls' ratings of perception towards computer self-efficacy, perceived usefulness and ease of use, and behavioral intention to use ICT were all higher than those of boys (Adamus et al., 2009). It was further reported that males exhibited a more favorable attitude towards Web-based learning than females. The study equally reported that a major gender difference exists in the way females and males rated themselves in their ability to master ICT skills; though both genders were positive about their ICT ability. Males rated themselves higher than females. According to Christopher and Evangelia, (2016), male folks are likely to use some of the ICT tools more often than females.

The study of Samuel, Ibrahim, Yahya, and Jimoh, (2018) on the influence of gender on Nigerian Senior Secondary School Students' interest in utilizing various ICT digital and satellite programs such as (mobile phones, laptops, pads among others) revealed that two hundred and fifty-six female and male senior secondary school students were involved to determine the interest and frequency of operation of ICT facilities. The findings revealed that female students show greater interest than male counterpart in utilizing ICT facilities for entertainment rather than for educational purposes. The researchers recommended that students' interest in entertainment should be re-channeled towards educative programs. The study asserted that the teachers should inspire students to use ICT devices within and outside the school premises to search for educative programs rather than social and entertainment programs.

Kirkpatrick and Cuban (2010) opined that the sex gap is narrowed when both genders are exposed to the same amount and types of experience on the operation of the computer. The national policy on education aims at providing equal access to quality educational opportunities for all citizens at all levels of education, in and out of the formal school system (FRN, 2013).

Teachers' Educational Qualification and ICT Utilization

A professionally qualified teacher is someone competent in both the subject matter and the method of imparting the knowledge to others while a non-professional teacher lacks the various psychological methods by which learning would be facilitated. Professional qualifications are important in education. The professional skill of the teacher creates a productive classroom atmosphere from the start using good organization and carefully planned to teach structures.

Denning (2015) stated that professional qualification often transforms into a high quality of teaching with the expectation that this would influence the learning of the student. Teacher professionalism should be exhibited in skills like giving prompt feedback, questioning, dealing with student's problems effectively, and creating specific kinds of climate settings for different lessons making sure that students understood and coped with the amount of knowledge given to them. Adefisayo (2010) asserted that to facilitate better performance, the teacher should always equip himself with the necessary facts and must try to enrich himself with new knowledge and ideas. It should be emphasized that the teacher should know more than the students he is to teach to be a good source of motivation to others and to satisfy his thirst for information and ideas needed for good performance.

Agyemang (2013) also asserted that any teacher who does not possess both academic and professional teaching qualifications would certainly have a negative influence on the learning and teaching of the subjects. The study further affirmed that a teacher who is

academically and professionally qualified but works in an unfavorable working environment would be less devoted to his work and thus be less fruitful than a teacher who is unqualified but works in a favorable environment. Findings from various studies indicated that the more business teachers integrate ICT in their lessons is influenced by several factors, among which is teachers' competence in ICT applications (Tayo & Adedayo, 2013). Also, Yusuf (2016) opined that teacher's competence is a factor that gives concern when new subjects or new technology is introduced in the school system. It has been observed by (Magaji, 2018) that the level of ICT competencies among teachers in universities is better than other levels of training in Nigeria. He concludes that the level of competence and skills in ICT depends largely on the level of educational qualification and exposure to ICT facilities. The successful application of ICT policy in secondary school depends on the ability of the teachers to structure new pedagogy to develop socially active classrooms that encourage cooperation, interaction, and collaborative learning. Pedagogy of ICT must be made so as to maintain focus on teaching to derive maximum benefit from using ICT in daily activities.

Teachers' Educational Experience and ICT Utilization

Teaching is seen as a scientific process whereby the teacher adopts a systematic planning process of imparting instructions, experience, and skill in the use of ICT facilities to a learner. The experience of a teacher (ET) is an important issue in helping the learner to acquire new valuable ICT skills. It is, therefore, necessary for the teacher to have both academic and professional qualifications as well as an adequate teaching experience in order to make an influence on the learner and possibly the academic achievement of the students. This simply means that any attempt to establish a common notion or belief that the more experienced a teacher is, the more productive he will be in his teaching and the more likely his students will perform more brilliantly academically in their internal and external school examinations than those students taught by an inexperienced teacher. A common adage says that experience is the

best teacher. Experienced teachers are ordinarily, more effective in improving student achievement than his less experienced counterparts. This is simply because experienced teachers are more likely to perform in classrooms, bringing along, his past teaching experience to bear in his lessons. Teachers have tendency to improve with experience, but not all teachers start their careers with the equal skills level or rise to equal level. The point being emphasized is that experience and productivity are interrelated. The fundamental assumption is that experience stimulates effectiveness.

In education, according to Jennifer (2015), teacher's experience is probably the main factor in employees' policies that touch modern employees: it is a basis of conventional single-salary schedules; it motivates teacher transfer policies that prioritize seniority; and it is usually considered as a major basis of injustice across schools and, as an objective for redeployment. Experience has been defined in the Longman Dictionary (2005) as knowledge or skill gained from doing a job or occupation for a extended time. In the same vein, attempts have been made by several writers and researchers to relate experience and productivity in any human organization, including educational institutions. Many of these studies focus mainly on leadership roles and experience. Studies conducted by Blumbers and Campbell (2003) and cited by Asuka (2011) have a divergent opinion on whether or not that administrative effectiveness is positively correlated with length of experience in an executive post such as the school principals. Some of these cited studies empirically and out rightly disprove the conception that experienced teachers and principals are more productive and effective than young and inexperienced ones. Specifically, Harrist and Gross (2010) discarded the notion that more experienced principals and teachers demonstrate greater executive and professional responsibility than less experienced ones or that the length of teaching experience positively correlated with productivity or age of the teacher is a determinant of efficiency and effectiveness. On the contrary, however, Adamus et al. (2009) in his study, found out that

teachers' length of teaching and administrative experience are not consistently related to students' performance. The researcher, however, concluded that it is better to embark on advanced training and retraining programs for teachers since experience alone does not necessarily make one a more effective teacher.

Adu (2010) in his study titled "Production of Academic Achievement as a Function of Teachers Experience and Salaries", came up with the findings that teacher's experience is an essential factor in students' academic performance. However, most of these researchers do not use or test other teacher variables to convince readers of the relatedness between teaching experience and effectiveness in the classroom. One may meet principals or teachers who might have spent comparatively less number of years in training or classroom exhibiting and employing exceedingly more brilliant administrative techniques and teaching strategies than some of their counterparts who nearly spent most of their teaching career periods either in an administrative capacity or practicing classroom teaching. From all the aforementioned discussions, it can be, confidently and unambiguously, state that one can have taught for five or more years and have just one year's experience. This refers to some teachers who, despite the long years they have put into teaching, continue using and repeating the same notes, year in and year out for students. Some have refused to develop themselves academically and professionally but continue to quote outdated principles of teaching and using archaic or obsolete methodologies. On the other hand, there is that teacher who has spent just five years or less in teaching but who is very innovative, dynamic, pragmatic, and democratic, and who is applying and using different methods in teaching, matching methods with the current ICT skill and circumstances, thinking ahead, projecting and forecasting for improved and effective teaching and learning. This teacher can be described as an 'experienced' teacher because of his progressive mind. From the ongoing discussion on the correlation between teaching experience and effectiveness with particular reference to classroom teaching and the output, students'

academic achievement seems to be controversial. It is believed that higher training and retraining programs for teachers will be the best option since experience alone does not necessarily lead to an effective teacher.

Challenges of Utilizing ICT Facilities

Mungai (2011) identified several factors hindering the utilization of ICT in his country. Such factors identified include: lack of qualified teachers, few qualified teachers available are overstretched, deficiency of electricity, which is a common problem in Nigeria, inadequate supply of computers, poor maintenance and breakdown of the computers, high cost of buying ICT resources, burglary, lack of computer skill by both teachers and administrators, obsolete computers and increased moral decadence among students, which lead to misuse of such facilities as internet by people who watch inappropriate material, cyber-bullying, and other anti-social behaviors. Langat (2015) equally identified barriers hindering the implementation of ICT programs as the inadequate infrastructure and resources, inadequate teachers, lack of clear digital curriculum, political issues, poor timing and poor planning, high cost of implementation, communication barriers, corruption, moral issues, and high crime rates among others. The researchers made useful recommendations that would enhance the operations of ICT facilities such as assessment analysis of all stakeholders, the establishment of good communication channels, professional development of teachers and technicians, the establishment of digital curricula, and the creation of associates in education.

With all the benefits derived from the use of ICT facilities within the realm of the information cycle, some problems emanated which in one way or the other impede the effort of information users to satisfy their information needs. According to Handal (2011), skilled manpower like computer technicians, computer scientists, system designers, system analysts, are lacking in many of the secondary schools in Nigeria. Azuka (2011) identified such problems as power supply, cost of acquiring basic and formal ICT literacy programs, inadequate access

to ITC among others, constitute a major problem. Egomo, Enyi, and Tah, (2012) equally reported similar findings in his study, that, “finance” and “power failure” were major problems impeding ICT utilization in Nigeria. The low utilization level of ICT was attributed to certain circumstances beyond many students' control; such include lack of access and the cost of using these vital learning facilities by the students. Balanskat & Amir, (2017) pointed out that, there are a variety of problems, such as, lack of ICT skills that could limit teachers in using ICT tools. Also, many teachers are reluctant about the operation of ICT. Many of them do not like to increase their burden for reasons of old age and lack of desire to displace conventional methods, also the fear of wasting time by using technical means. There is also a lack of incentives and encouragement from those responsible for the advancement of ICT teacher education. In particular, there is a lack of concern and disregard for the attaining of infrastructure requirements for ICT from decision-makers. Many research results clearly showed that many barriers are affecting the utilization of ITC in the education process in general and the classroom in particular. Hennessy and Udi, (2010) identified a range of physical and social factors that touch on the use of ICT by teachers, this include lack of dependable access to electricity, inadequate technology infrastructure (especially internet access, bandwidth, hardware, and software provision), the language of teaching and available software; geographical factors such as country population size, terrain, and communications; demographic factors such as size of population, density, and dispersion. They are also added, the issues of access to ICT facilities due to extreme poverty and lack of political will to alleviate the situation through proper planning. Also, the study equally emphasized that educational factors including levels of teachers' own education and literacy rates, and access to professional development also played an important role. Psychological factors of teachers i.e. their own beliefs and attitudes towards ICT and pedagogical enhancement are primary barriers (Hennessy and Udi, 2010). Indeed, many other studies indicated that it is teachers’ attitudes, expertise,

lack of independence, and lack of knowledge to assess the use and role of ICT in teaching (or technophobia in teachers) that are prominent factors hampering teachers' readiness and confidence in using ICT support. Added to these, are the general shortage of learning resources, course curricula, and other learning materials that combine the use of ICT (Hennessy and Udi, 2010). It is also identified that school administrators do offer very little structural support and few incentives to the utilization of technology effectively in the classroom. Too often, the curriculum in developing countries is not flexible and overloaded, leaving little time for new classroom practices (Hennessy and Udi, 2010). Added to these challenges are national policies needed to make more commitment to helping teachers to effectively integrate computers and internet technologies into the classroom by aligning curricula, examinations, and incentives with the educational outcomes that they hope to gain. In effect, computers by themselves contribute very little to the learning process – they are only tools for learning and teaching (Hennessy and Udi, 2010).

In support of the above study, Al-Otaibi (2016) from Saudi Arabia, pointed out that, teachers do avoid using ICT tools for e-learning in the country. This is why the existing curricula and the context did not easily fit with e-learning. The study found that there was a lack of information for teachers to support e-learning successful takeoff. Included among the problems identified, are a high number of students per class, the limited number of computers in schools, a lack of suitable places for e-learning, and a shortage of trained e-learning teachers. The study reveals that female teachers were less candid about their computer use since many of them had not been to training courses on e-education (Al-Otaibi, 2016). The study of Zalles (2014) also showed that many teachers recognized infrastructure problems, such as the lack of computers in working condition, unreliable electricity, or lack of access to the internet, although these varied by country and are generally considered as a barrier to the use of ICT to education students. According to Tinio (2012), the challenges that may affect infrastructure are

the absence of suitable buildings and rooms to house the technology, shortage of electric supply, and lack of different brands of ICT facilities. Etonyeaku (2013) also added that the limiting factors to include the level of utilization as a result of low bandwidth from internet service providers, and high cost of equipment, poor internet connections, and infrastructure to house these facilities, and lack of skills on the part of the users are part of the challenges. As a result of this, one needs to deal with infrastructure-related issues before the planning of ICT integration to school systems. Kivuli (2013) observed as a big challenge, lack of many stakeholders' awareness of the position of ICT in learning and teaching. These include students, teachers, parents, and the community at large. The researcher also mentioned that there are inadequate ICT resources in schools; including local software developers to work within schools for training. Inadequate professional growth of principals, inadequate teachers' encouragement to use ICTs in schools, and lack of time to incorporate ICT into the existing curriculum were also cited to be contributing factors. It is the researcher's view that, while many factors are affecting and hindering the operation of ICT in schools, some of them can be minimized or totally overturned if essential interventions are put in place by the state government.

Review of some Empirical Studies

Several studies were found to be similar to this study on availability, utilization, and maintenance of Information and Communication Technology (ICT) teaching facilities. A few of them were reviewed as follows:

Nwachukwu (2016) conducted a study on the relationships between provision of ICT facilities, funding, selection processes, planning and administration, and the level of teacher education in Nigeria. Four specific purposes, research questions, and hypotheses were adopted for the study. The study showed a presentation of the detailed analysis of a survey on the provision and use of information and communication technology (ICT) and the issues that

underlie the adoption of ICT in secondary schools in Nigeria. The information for the study were gathered through a two-page questionnaire administered to 180 respondents who were available in the selected secondary schools. A total of 154 copies of the questionnaire were recovered which represents an 86% return rate. The mean and the standard deviation were used to analyze the data collected to answer the research questions. The null hypotheses were tested using the Pearson Product Moment Correlation at a 0.05 level of significance. The result indicated the perception of secondary school students on the impact of integration and use of ICT on the academic performance of the students. It revealed that the respondents were discouraged with the slow pace of provision and level of utilization of ICT facilities in both the states and federal government-owned schools. This report shows that ICT facilities were not provided in good numbers and that the available ones were not fully utilized.

Nwachukwu's study is different from the present study because Nwachukwu did not cover the availability and level of maintenance of ICT facilities to ensure adequate utilization which the present study covered adequately. Nwachukwu's study was conducted in a different state from the present study. However, the two studies are similar because they both focused on the utilization of ICT facilities at the secondary school level and also in respect of the research design used. Nwachukwu's study is relevant to the current study because the present study derived some relevant literature from Nwachukwu's work.

The study of Ayeni and Ogunbameru (2013) assessed the level of availability and utilization of information and communication technology (ICT) facilities for the realization of excellent learning outcomes in secondary schools in Ondo State, Nigeria. It also examined teachers' and students' opinions on the constraints, and strategies that could enhance the effective utilization of ICT facilities. A survey research design was adopted and a quantitative technique was used for data collection and analysis. A total of 404 participants comprised of teachers and students from the participating secondary schools in Ondo State. The finding

revealed that the most available and commonly use ICT facilities were the computer set (46.7%), printers (41.3%), and bulletin boards (31%). Other ICT facilities were not available. The results also show that the relationship between the opinion of students and teachers on the utilization of ICT facilities was low ($r = 0.045$, $p < 0.05$). The major constraints identified by the study include a shortage of ICT facilities and low capacity of teachers, irregular power supply, inadequate technical support, and poor funding. The study however failed to mention students' access to ICT facilities and the strategies adopted in maintaining the available ICT facilities. The literature and research design adopted is quite useful in this study.

Nwadiani and Egbri (2016) investigated business education students' access to and utilization of ICT resources for learning in Edo State. The study answered two research questions and formulated and tested four hypotheses. A survey design was adopted for the study. The population comprised 559 business education students and a stratified random sampling technique was used to select 254 of the population as a sample. The study revealed that business education students do not have enough access to and adequate utilization of ICT resources for learning business education courses in tertiary institutions in Edo State. The study confirmed that while a few ICT resources were accessed and utilized most of them were not freely accessed and utilized. There was no significant difference in the access to and utilization of ICT resources based on gender and type of school.

The study of Nwadiani and Egbri (2016) is different from the present study because it is centered on the tertiary level of education while the current study covers the secondary education level. The study did not also cover the availability and level of maintenance of ICT facilities to ensure adequate utilization which is the center point of this study. Nwadiani and Egbri study was conducted in a different state from the present study. However, the two studies are similar because they both focused on access to and utilization of ICT facilities and also in

the aspect of the research design used. The study is however relevant and useful to the current study because it derived some relevant literature.

Also, the study of Papaioannou (2011) explored the attitude of teachers and school administrators towards information technology and communication technologies (ITC) and also their opinions about the factors that facilitate or inhibit ICT operations in schools in Cyprus. School principals generally held positive attitudes toward the utilization of ICT. The study however revealed some statistically significant differences across gender, academic qualifications, years of service, in-service training on ICT for teaching and learning purposes, access to a computer and the internet at home, the existence of computer experience, and principals' attitude towards ICT. The study discovered that even though principals appreciate the importance of ICT in the teaching and learning process as well as for the fulfillment of their administrative and managerial purposes, they still need more tailor-made, in-service training and incentives to transfer their theoretical enthusiasm into practice. The study also show that the teachers too have positive attitude towards ICT utilization in the promotion of teaching but deficient in skill acquisition to actualize a positive attitude. The study is similar to the current study in the sense that they both focus on how ICT facilities are utilized among teachers and principals. The study, however, differs significantly from this study in the area of utilization of ICT for school administrative purposes rather than students' learning process. However, the researcher derived beneficial ideas from the literature reviewed.

Asiyai (2012) investigated the state of school facilities and the type of maintenance done on the facilities in public secondary schools in Delta State, Nigeria. The study employed the ex-post-facto research design. The instrument used was the data collection from 640 respondents selected through stratified sampling techniques from all the 358 public secondary schools in the state. Report of findings showed that school facilities were generally in a poor state and that the maintenance carried out on the school facilities were generally inadequate for

most of the facilities. The study equally showed the factors encouraging the depreciation of school facilities to include excess utilization of the available facilities, inadequate fund allocation, and delayed maintenance. Asiyai's study is different from the present study because Asiyai did not cover the availability and extent of utilization of the ICT facilities in schools which the present study covered adequately. Asiyai's study was conducted in a different state from the present study. However, the two studies are similar because they both focused on the maintenance of ICT facilities in public secondary schools and also in respect of the research design used. The present study also derived some relevant literature from Asiyai's work.

The study of Ndinechi and Ementa (2013) identified 16-word processing skills which the respondents utilized and rated. Out of this number, eight skills were rated by respondents as well utilized while the other eight were rated as poorly utilized. The study further discovered that male and female business students in South East Nigeria rated high the teaching of word processing skills. The null hypothesis which states that male and female business students in tertiary institutions in southeast Nigeria do not differ significantly in their ratings of the teaching of word processing skills was rejected. This implies that there was a significant difference in the respondents' ratings of word processing skills. The female respondents had a higher mean score than males. This is to say that; the attitude of female students has changed positively over the years more than male students because females show more interest in the utilization of ICT facilities than male students. The study asserted that students should be taught word processing skills to give them the knowledge needed to help them compose and produce letters, memoranda, and reports that are mail-able. This study is similar to this study in that it emphasizes the constant utilization of ICT facilities to ensure the desirable development of ICT skills. The study however failed to mention anything about the availability of ICT facilities and the strategies that could be adopted in maintaining the available ICT facilities. The study is

equally different from this current study. The relevant literature derived from the study was, however, useful to the researcher.

Apagu and Bala (2015) examined the availability and utilization; the usefulness and challenges of ICT facilities in learning and teaching vocational and technical education in Yobe State technical college. A descriptive strategy was used for the study. The instrument for the data collection was a validated and administered self-designed questionnaire. The study showed that ICT facilities were inadequate in technical colleges. Teachers' and students' exposure to ICT facilities was low. The study indicated some of the gains of using ICT in technical colleges which include making teaching and learning interesting; helping teachers to be up to date in enhancing the quality of work of both teachers and students. The study also revealed some of the challenges of ICT. Apagu and Bala's study differ from the current study in the sense that, it is centered on the benefits and challenges of ICT in a technical college and in a different state (Yobe State) from this study. The study's literature is however beneficial to this study because of its relevance to the availability and utilization of ICT facilities for teaching and learning.

The study of Ayelotan and Sholagbade (2014) examined the adequacy of the available infrastructural facilities for the Office Technology and Management (OTM) program. The findings showed that many of the items needed were not available for students' instructions. It also found that many of the construct listed were not adequate in number for the training of OTM students. The study revealed that adequate infrastructural facilities are required for the successful implementation of a business program to meet the technological needs of the present-day office activities. The study concluded that inadequacy or lack of infrastructural training facilities could harm both the students and graduates of Office Technology Management.

Ayelotan and Sholagbade's study differs significantly from this study because it focuses on the availability of infrastructural facilities for the Office Technology and Management (OTM) program and not at the secondary school level. However, the two studies are similar because they both focused on the availability of ICT facilities and also in respect of the research design used. Ayelotan and Sholagbade's study is relevant to the current study and derived some relevant literature from the work.

Muhammad, Iafanullah, Siraj, and Hafiz (2015) examined the influence of availability of ICT facilities on students' opportunity to access information in the Gomal University, Dera Ismail Khan. A sample of 50 respondents was selected from the Department of Political science, Gomal University, Dera Ismail Khaan, Khyber Pakhtunkhwa, Pakistan. The research instruments were questionnaires that were statistically analyzed with contingency tables; while the mean statistics was used to test the hypotheses. The results of the study showed a varied response from students regarding the influence of the availability of ICT facilities on students' achievements. The study did not cover the utilization and level of maintenance of ICT facilities which the present study covered adequately. Muhammad et al.'s study was conducted in a different country and far away from the present study area. However, the two studies are similar because they both focused on the availability of ICT facilities at the secondary school level and also in respect of the research design used. Muhammad et al.'s study is relevant to the current study and derived some relevant literature from their work.

The study of Amiaya (2016) was on the availability and adequacy of information and communication facilities for office technology and management program in Delta state. The study used a survey design. Two research questions and one hypothesis were generated for the study. The entire population of teachers and students from the institutions was used for the study because it is within a manageable proportion. The instrument used was a structured questionnaire. Data were analyzed using mean and standard deviation, while the null

hypothesis was tested using t-test statistics. The results revealed that available ICT facilities such as e-mail are fairly adequate; computer, uninterrupted power supply (UPS), and ICT support personnel were somewhat adequate while other items listed as available such as projector, teleconferencing, among others were rated inadequate. The finding is similar to this study because it also revealed that, there was no significant difference between the mean ratings of students and teachers on ICT facilities available for learning and teaching. This study, however, differs from the current study because it concentrated its findings on the availability and adequacy of ICT facilities in tertiary institutions. It also failed to investigate how ICT facilities are utilized and maintained which this study covers adequately. The study equally failed to look at the availability, utilization, and maintenance of ICT facilities in secondary schools in the state.

The studies of Crossdale, Mbaegbu, and Nwosu (2019) studied the use of Information and Communication Technology in teaching and learning of business subjects in junior secondary schools in selected public schools in Delta State. The sampled respondents for the study were business teachers and students from junior secondary schools, numbering 204. Three research questions and two hypotheses guided the study. A structured questionnaire was used to collect information for the study. Mean and standard deviation were utilized to provide answers to the research questions and t-test statistics were employed to test the hypotheses at a 0.05 level of significance. The findings showed the unavailability and non-utilization of information and communication technologies for teaching and learning business subjects in junior secondary schools in Delta State. Other findings include the existence of several barriers capable of militating against the learning and teaching of ICT in business subjects. This study differs from the current study because Crossdale, et al. (2019) never treat the maintenance strategies of ICT facilities to ensure adequate utilization for teaching and learning, which the present study cover adequately. Crossdale, et al.'s (2019) study was conducted at the junior

secondary school level and in a different state (Delta) away from the current study. However, the two studies are similar because they both focused on the availability and utilization of ICT facilities and also in respect of the research design used. Crossdale, et al. (2019)'s study is relevant to the present study because the present study derived some relevant literature from Crossdale, et al. (2019)'s work.

Subair and Bada (2014) investigated the perception of school principals on the availability and level of utilization of information and communication (ICT) on school administration in public secondary schools in Osun State, Nigeria. A 25-item self-designed checklist and questionnaire tagged "Available ICT Equipment and Facilities Checklist (AICTEFC) were utilized for the study. The data were analyzed using descriptive statistics like percentiles and pie charts. The result of findings shows that school administrators are conscious of the importance of ICT in school management, but the challenge identified is the inadequacy of the vital ICT facilities in the college and knowledge to utilize these ICT facilities. It was revealed also that the majority of the schools suffer from the required ICT resources hence most school principals could not utilize the ICT resources for administrative purposes. The result also showed that the majority of the principals relied on print technology for many administrative purposes. The study suggested a need assessment to be carried out to facilitate the development of ICT in secondary schools since the same difficulty is affecting both teachers and students.

Subair and Bada (2014)'s study is significantly different from the present study because the study is limited to the availability and utilization of ICT facilities for school administrative purposes. It does not cover the utilization of ICT facilities for teaching and learning. The study also fails to deal with ICT facilities maintenance which is the focus of this study. Subair and Bada (2014)'s study was conducted in a different state from the present study. However, the two studies are similar because they both focused on the utilization of ICT facilities at the

secondary school level and also in respect of the research design used. Subair and Bada (2014)'s study is relevant to the current study because the present study derived some relevant literature from Subair and Bada (2014)'s work.

Kyakulumbye, Olobo, and Kisenyi (2013) conducted a study among the staff of Uganda Christian University on Information Communication Technology (ICT) utilization in private universities in Uganda: Exploring strategies to improve: A case study of Uganda Christian University. The study adopted a descriptive survey. Mean, standard deviation, and Pearson Product Moment Correlation Coefficient statistical tools were adopted to establish the relationships between variables to express the causal influence of factors on ICT utilization. The study reported that the organizational support system; ICT infrastructure and user's opinions had a strong relationship with ICT usage. The findings also show that user knowledge and skills had a significant causal influence on the use of ICT in the university. The researcher recommends that strategic management should cater for ICT personnel capacity building to improve teachers' skills and therefore enhance ICT usability. This study has considered the use of ICT in educational functions generally. It, however, differs from this study, in the sense that, it is not specific and direct to the availability, utilization, and maintenance of ICT facilities in secondary schools. The study was carried out outside the geographical boundary of this study and a different country. The methodology adopted was however relevant and useful.

Mavellas, Wellington, and Samuel (2016) assessed the availability and utilization of common educational Information Communication technologies (ICT) in secondary schools using a High School in Kwekwe, Zimbabwe as a case study. The study used a quantitative research approach to analyze the data because the research questions required numerical results/answers. The target population was 51 teachers at the high school while a random sampling method was used to select 45 teachers. The study determined whether the available ICTs are being utilized by teachers and students. The study in addition identified the factors

hindering the utilization of ICT in the schools; among them were lack of power supply, insufficient resources, fear of technology, and lack of interest. Mavellas et al.'s study is different from the present study because Mavellas did not evaluate the level of maintenance of ICT facilities to ensure adequate utilization which the present study covered adequately. Mavellas's study was conducted in a different country from the present study area. However, the two studies are similar because they both focused on the availability and utilization of ICT facilities at the secondary school level. Mavellas's study is useful and relevant to the current study because it derived some relevant literature from Mavellas's work.

Appraisal of Literature Reviewed

This study reviewed a wide range of empirical studies that are relevant to the availability, utilization, and maintenance of ICT facilities for instructional delivery of business subjects to conclude the extent to which these characteristics are in fact, linked with improved ICT skill acquisition.

There is no doubt that the field of education has been greatly influenced by ICT; it has certainly affected teaching, learning, and research. The literature reviewed has pointed out clearly that ICT utilization has the inherent tendencies to revolutionize, enrich, hasten, and deepen skills, to help them relate school experience to work practices, to inspire and involve students, create economic viability for tomorrow's workers, as well as support teaching and enhancing schools change. Students' use of ICT for learning purposes has become inevitable in the course of learning and as many students utilize ICT as information sources and intellectual tools, the influence of the technical support on how students learn will continue to increase. Literature has also confirmed that the incorporation of ICT facilities into public secondary schools offers unique opportunities to the education systems. Through ICT, learners can integrate, enhance, and relate with each other over a varied geographic distance in a meaningful way to achieve the learning objectives. With the growth and contribution of these

ICT facilities, their comfort of use, the power, and variety of information transfer can allow teachers and students to have access to a world beyond the classroom.

Literature also affirms that ICT has the potential to change the process and nature of teaching and learning atmosphere and predict a new education culture. Advantages of interactivity, flexibility, and ease of use have become a major advantage in the ICT-supported atmosphere ICT opens up opportunity for learning because it enables learners to extend and share ideas, transform, access information in a range of communication format and styles. ICT assist the learner to promote collaborative learning principles, promote learner-centered, share learning resources and ideas, and promote creative thinking, and problem-solving skills. These accrued benefits form the basis for agitation for the meaningful utilization of ICT in secondary schools.

As mentioned previously, in the literature reviewed, any effective use of ICT in learning situations can support many variety of knowledge construction and as more and more students adopt ICTs in their learning endeavors, the more pronounced the effect of the new technology will become. Teachers' ICT skills can generate meaningful and engaging learning experiences for their students, purposefully utilizing ICT to improve learning. Students' access to available ICT facilities promotes learning, and the independent inquiry, with the appropriate utilization of ICT facilities, can foster better learning.

Again, the maintenance strategy of any business education machines and equipment speaks much about such an educational program. Literature confirms that the good quality and standard of a business education program, or any program for that matter, is dependent on the provision, utilization, and maintenance of ICT facilities. One of the fundamental ways of ensuring the maximum utilization of available resources is through an effective maintenance strategy. The maintenance culture of any business education machines and equipment speaks much about such a department. The good standard and quality of a business education program

are dependent on the provision, utilization, and maintenance of educational facilities. Literature recommended breakdown maintenance, corrective maintenance, and preventive maintenance as the three major types of maintenance which school administrators should adopt for the effective performance of school facilities. The pertinent question to ask, is how many of these ICT facilities are available, utilized and maintained in public secondary schools today in Kwara State? Based on the literature reviewed, it is concluded that if ICT facilities are made available effectively utilized and maintained, will no doubt, fill the omission of ICT skill gap needed among secondary school students and teachers in Kwara State. If the missing gap of ICT skill acquisition is filled, it will go a long way in preparing students for the dear need of virtual or on-line teaching; even as they learn from home classes.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter focuses on the methodology used for the study. The chapter is presented under the following sub-headings:

Research Design

Population of the Study

Sample Size and Sampling Techniques

Instrument for Data Collection

Validity of the Instrument

Pilot Study

Reliability of the Instrument

Procedure for Data Collection

Method of Data Analysis

Research Design

A descriptive research survey design was used for the study. The design involves collecting and analyzing the data gathered for the study. A descriptive survey reports the way things are (Zakka, 2018). It involves assessing attitudes, perceptions, or opinions towards individuals, organizations, events, or procedures. The choice of the design was based on the opinion of Bess, (2010) who stated that a descriptive survey research design is often used because of easy access to the information required and to understand the social phenomenon from the participants' perspective. The design is, therefore, suitable for the study because it involves the use of a structured questionnaire to gather required data from respondents to assess the availability, utilization, and maintenance of ICT facilities for learning and teaching business education subjects in public secondary schools in Kwara State.

Population of the Study

The population of the study comprised 11,167 business students and business teachers. This number consist of all business teachers and Senior Secondary III (commercial class) students for the 2019/20 academic session in public senior secondary schools in Kwara State. There were 755 business teachers (402 male & 353 female teachers); and 10,412 students (5,535 male & 4,877 female students) from 347 public secondary schools. The breakdown of the population of the study is as given in Table 1:

Table 1: Population of the Study

S/N	Senatorial District	LGA	No of Schools	No. of Students		No. of Teachers		Total
				Male	Female	Male	Female	
1.	Kwara North	Baruten	17	323	204	12	2	541
		Edu	21	433	268	20	2	723
		Kaiama	9	182	107	6	2	297
		Moro	19	228	173	20	7	428
		Patigi	16	207	121	14	1	343
2.	Kwara South	Ekiti	15	97	92	14	4	207
		Ifelodun	44	381	315	36	21	753
		Irepodun	40	312	304	35	26	677
		Isin	17	90	82	14	7	193
		Offa	14	320	315	19	19	673
		OkeEro	14	86	87	13	6	192
		Oyun	20	226	192	22	11	451
3.	Kwara Central	Asa	22	321	236	28	15	600
		Ilorin East	30	740	594	48	53	1435
		Ilorin South	21	616	666	38	85	1404
		Ilorin West	28	973	1121	63	92	2249
Total			**347**	**5,535**	**4,877**	**402**	**353**	**11,167**

Source: *Kwara State Ministry of Education and Human Capital Development, Annual school census report – 2019*

Sample Size and Sampling Technique

The sample comprised of 336 students and 25 business teachers. The sample is in line with the recommendation of The Research Advisors (2006). The Research Advisors recommend that when the population is 11,168; a sample size of 361 subjects should be adopted (see Appendix E, page 137).

The study employed a multi-stage sampling technique involving a stratified sampling technique, a simple random sampling technique, and a proportional sampling technique. The first stage involved a stratified sampling technique of the population into strata. That is three senatorial districts in Kwara State (Kwara North, South, and Central). This was done to ensure that all the senatorial districts in the state, which is the location of the study, were adequately represented.

A simple random sample technique was used to select two local government areas from each senatorial district. To do this, the 'hat drawn' method where pieces of papers containing names of each local government area were drawn. Then the proportional sampling technique was adopted to sample schools, teachers, and students from each local government area for the study. This is because the number of schools, teachers, and students in each senatorial district were not equal. This is in line with Saleh (2003) who stated that when there is difficulty in studying the entire population of individuals or objects, the educational researcher should select a sample by a method that ensures the provision of an unbiased, suitably close estimate of the relevant characteristics of the population.

The two local government areas sampled from each of the three senatorial districts were: Kwara North senatorial district, Moro and Patigi were picked; For Kwara South districts, Irepodun and Offa were picked and for Kwara Central, Ilorin South and Ilorin West were picked. The number of proportionately sampled schools from each LGA was as follows: Moro (two), Pategi (two), Irepodun (four), Offa (one), Ilorin South (two), and Ilorin West (three). A total sample size of 361 was selected. The details of the sample size used are given in Table 2:

Table 2: Sample Size

S/N	Senatorial District	LGA	No of schools	No. of Students		No. of Teachers		Total
				Male	Female	Male	Female	
1.	Kwara North	Moro	2	14	11	1	1	27
		Patigi	2	13	8	1	1	23
2.	Kwara South	Irepodun	4	20	19	2	2	43
		Offa	1	20	20	1	1	42
3.	Kwara Central	Ilorin South	2	39	41	2	4	86
		Ilorin West	3	61	70	4	5	140
Total			**14**	**167**	**169**	**11**	**14**	**361**

Instrument for Data Collection

The instruments for data collection were check-list and questionnaires (for students and teachers) tagged "Assessment of Availability, Utilization, and Maintenance of ICT Facilities in secondary schools Questionnaire (AAUMICTFQ) I and II" designed by the researcher. Each of the two instruments was divided into two parts, sections A and B. Section A of the instrument consists of the demographic data of the respondents, while section B was further divided into three parts based on the research questions formulated for the study. Part I consists of 25 items on the assessment of the availability and utilization of ICT facilities which were rated on a 4-point rating scale of Very Large Extent (VLE-4), Moderate Extent (ME-3), Low Extent (LE-2), and No Extent (NE-1). Part II consists of 25 items on the level of maintenance of ICT facilities available, which were also placed on a 4-point rating scale of Adequate Maintenance (AM-4), Moderate Maintenance (MM-3), Low Maintenance (LM-2), and No Maintenance (NM-1). Part III of the students' questionnaire consists of 25 items on the perception of students on teachers' proficiency in utilizing listed ICT facilities, which were placed on a 4-point rating scale of High Proficiency (HP-4), Moderate Proficiency (MP-3), Low Proficiency (LP-2) and

No Proficiency (NP-1). Part III for the teachers' instruments consists of 15 items on the perception of teachers on the strategies for maintenance of ICT facilities which were placed on a 4-point rating scale of Strongly Agree (SA-4), Agree (A-3), Disagree (D-2), and Strongly Disagree (SD-1) respectively. All the items were structured and close-ended.

Validity of the Instrument

The face and content validity of the instruments was determined by experts comprising three senior lecturers from the Faculty of Education, Kwara State University Malete, and researcher's supervisors. These experts critically examined the instrument concerning its fitness for this research work. After the scrutiny by the experts, appropriate amendments were made based on their suggestions and modifications. Their criticisms and comments were fused into the final draft of the instruments.

Pilot Study

After necessary corrections and validation of the instrument, a pilot study was conducted at Baptist Grammar School, Sunsun, Ogbomosho, Oyo State using 40 respondents (4 teachers and 36 students). The respondents were outside the population of the study, but have the same characteristics as the study subjects. The pilot study was conducted to determine whether the questionnaire items were clear and understood by the respondents; whether there would be a need to add more items in the questionnaire and how the respondents would react to the questionnaire items. After the pilot study, ambiguous items were detected and corrected.

Reliability of the Instrument

The reliability of the instruments was determined using statistical analysis on the data collected from the pilot study, using the Cronbach Alpha method to calculate the reliability of the instruments. The reliability coefficient of 0.82 and 0.86 were obtained respectively for the students' and teachers' instruments (see page 136). The reliability coefficient calculated is high

and positive therefore, the instrument was adjudged reliable and stable based on the postulation of Nworgu, (2015) recommending a threshold of 0.70 for research studies.

Procedure for Data Collection

The researcher collected a letter of introduction from the Head, Department of Business and Entrepreneurship Education, Kwara State University, Malete. This letter was presented to the principals or vice-principal of the schools where the study was conducted. The researcher proceeded to the classes and introduced himself to the students and teachers. This was done to create rapport between the researcher and the respondents and to explain the scoring of the items to them. The researcher, with the help of two research assistants administered the copies of the questionnaires to the teachers and students in all the schools selected for the study. The respondents were informed of the purpose of the study and their consents were sought before the administration of the instrument. Since there were no right or wrong responses to the items, the respondents were encouraged to answer honestly. The researcher and the research assistants went personally to the sampled schools during the official school hours to distribute and retrieved the questionnaire from the respondents. The school heads and the teachers were very cooperative as they assisted in organizing the respondents. This shows that they value a study of this nature. The exercise lasted for three weeks.

Method of Data Analysis

Frequency counts and percentages were used to analyze the demographic data of the respondents. The data collected to answer the research questions were analyzed using frequency counts and percentages for research question one, while mean and standard deviation were used for research questions two to six. Hypotheses one to five were tested using an independent-samples t-test while one-way analysis of variance was used for hypothesis six at a 0.05 level of significance. The use of independent samples t-test was to statistically compare the responses of male and female teachers and students. The one-way analysis of variance was

used to analyze variables relating to teachers' characteristics (i. e. teacher's experience and qualification).

Decision Rule

The following are the limit and value numbers used to interpret the analyzed data for research questions 1 - 6:

Very Large Extent (VLE)/Adequate maintenance (AM)/ High proficiency (HP)/Adequate Access (AA)/Strongly Agree (SA)	3.50 – 4.00
Moderate Extent (ME)/Moderate maintenance (AM)/ Moderate proficiency (MP)/Moderate Access (MA)/Agree (A)	2.50 – 3.49
Low Extent (LE)/Low maintenance (LM)/ Low proficiency (LP)/Low Access (LA)/Disagree (D)	1.50– 2.49
No Extent (NE)/No maintenance (NM)/ No proficiency at all (NP)/No Access at all (NA)/Strongly Disagree (SD)	1.00 – 1.49

In the test of the hypotheses of no significant difference, if the observed probability value was less than or equal to the fixed significant level of 0.05, the null hypothesis was rejected, but if the observed significant level was greater than the fixed significant level the null hypothesis was retained or not rejected.

CHAPTER FOUR
PRESENTATION OF DATA ANALYSIS

This research was conducted to assess the availability, utilization, and maintenance of Information and Communication Technology (ICT) facilities for teaching and learning in secondary schools in Kwara State. This chapter deals with the presentation and analysis of the research data and discussion of findings. A total of three hundred and sixty-one (361) questionnaires were distributed and retrieved. The breakdown of the retrieved questionnaires was 25 and 336 for teachers and students respectively. The analyses are presented under the following sub-headings:

Analysis of Demographic Data

Analyses of Data to Answer the Research Questions

Test of Hypotheses

Summary of Findings

Discussion of Findings

Analysis of Demographic Data

The demographic data of the respondents are presented in Tables 3 and 4 as follows:

Table 3: Percentage Distribution of Respondents by Gender N=361

Gender	Frequency	Percentage (%)
Male	178	49.3
Female	183	50.7
Total	**361**	**100.0**

Source: Field survey, 2020

Data in Table 3 reveals the frequency and percentages of respondents by gender (male and female) used for the study. There were 178 male respondents; representing 49.3% and 183

female respondents representing 50.7%. This indicates that the female respondents are more in number in the study.

Table 4: Percentage Distribution of Respondents by Status N=361

Status	Frequency	Percentage (%)
Teachers	25	6.9
Students	336	93.1
Total	**361**	**100.0**

Source: Field survey, 2020

Table 4 data reveals the frequency and percentages of respondents by status as used for the study. There were 25 teacher respondents representing 6.9% and 336 students representing 93.1%. This indicates that students who responded to the study are more in number than teachers.

Analyses of Data to Answer the Research Questions

Analyses of data to answer the research questions are presented in Tables 5 to 10 as follows:

Research Question One: What are the ICT facilities available for teaching and learning business subjects in secondary schools in Kwara State?

Table 5: Responses on the ICT facilities available for teaching and learning business subjects in secondary schools $N_T = 25$ and $N_s = 336$

S/N	Item Statements	Available		Not Available		Remark
		F	%	F	%	
1.	Desktop computers	233	64.5	128	35.5	Available
2.	Laptop computers	110	30.5	251	69.5	Not Available
3.	Palmtop computers	4	1.1	357	98.9	Not Available
4.	Fax (facsimile)	-	-	361	100.0	Not Available
5.	Photocopiers	219	60.7	142	39.3	Available
6.	Internet access	18	5.0	343	95.0	Not Available
7.	Digital camera	2	0.6	359	99.4	Not Available
8.	Telephones	326	90.3	25	6.9	Available
9.	Interactive white board (IWB)	4	1.1	357	98.9	Not Available
10.	Radio Cassettes	119	33.0	242	67.0	Not Available
11.	Projectors	228	63.2	133	36.8	Available
12	Modem	228	63.2	133	36.8	Available
13	TV broadcast	17	4.7	344	95.3	Not Available
14	Video conferencing	2	0.6	359	99.4	Not Available
15	Audio/Video Tapes	125	34.6	236	65.4	Not Available
16	Printers	281	77.8	80	22.2	Available
17.	Scanners	222	61.5	139	38.5	Available
18.	CD-Rom	95	26.3	266	73.7	Not Available
19.	Disk player	159	44.0	202	56.0	Not Available
20.	Flash Drive	228	63.2	133	36.8	Available
21.	Public Address system	220	60.9	141	39.1	Available
22.	Stabilizers	259	71.7	102	28.3	Available
23.	Electric typewriter	57	15.8	304	84.2	Not Available
24.	Uninterrupted power supply (UPS)	231	64.0	130	36.0	Available
25.	Electric Generator	230	63.7	131	36.3	Available

Source: Field Survey, 2020

Analysis of data in Table 5 shows the percentage distribution of responses to the ICT facilities available for teaching and learning business subjects in secondary schools. The table reveals that respondents indicated that desktop computers, photocopiers, telephones, projectors, modem, printers, scanners, flash drives, public address system, stabilizers, Uninterrupted power supply (UPS), and electric generator were available for teaching and learning business subjects in secondary schools with percentages ranging from 60.7% to 90.3% while laptop computers, palmtop computers, fax (facsimile), internet facility, digital camera, interactive whiteboard, radio Cassettes, TV broadcast, video conferencing, audio/videotapes, CD-Rom, disk player and electric typewriter were not available. This means that out of the 25

items in Table 5, 12 items are available and 13 items are not available. Therefore, to answer research question one, the ICT facilities available for teaching and learning business subjects in secondary schools are desktop computers, photocopiers, telephones, projectors, modem, printers, scanners, flash drives, public address systems, stabilizers, Uninterrupted power supply (UPS) and electricity.

Research Question Two: To what extent do students have access to available ICT facilities for learning business subjects in secondary schools in Kwara State**?**

Table 6: Mean and standard deviation of responses on the extent students have access to available ICT facilities for learning business subjects in secondary schools $N_s = 336$

S/N	The extent to which students have access to the following ICT facilities.	$\overline{X}$	SD	**Remark**
1.	Desktop computers	2.64	0.77	Moderate Extent
2.	Laptop computers	1.01	0.10	No Extent
3.	Palmtop computers	1.00	0.00	No Extent
4.	Fax (facsimile)	1.00	0.00	No Extent
5.	Photocopiers	1.36	0.63	No Extent
6.	Internet access	1.00	0.00	No Extent
7.	Digital camera	1.00	0.00	No Extent
8.	Telephones	2.52	1.94	Moderate Extent
9.	Interactive white board (IWB)	1.00	0.00	No Extent
10.	Radio Cassettes	1.20	0.40	No Extent
11	Projectors	1.26	0.44	No Extent
12	Modem	1.24	0.43	No Extent
13	TV broadcast	1.14	0.34	No Extent
14	Video conferencing	1.00	0.00	No Extent
15	Audio/Video Tapes	1.12	0.33	No Extent
16	Printers	1.77	0.85	Low Extent
17	Scanners	1.14	0.34	No Extent
18	CD-ROM	1.17	0.38	No Extent
19	Disk Player	1.18	0.39	No extent
20	Flash Drive	1.82	0.82	Low Extent
21	Public Address system	1.80	1.02	Low Extent
22	Stabilizers	1.36	0.63	No Extent
23	Electric typewriter	1.24	0.43	No Extent
24	Uninterrupted power supply (UPS)	1.37	0.65	No Extent
25	Electric Generator	1.79	0.90	Low Extent
	Weighted average	**1.37**	**0.47**	**Low Extent**

Source: Field Survey, 2020

Analysis of data in Table 6 shows that only desktop computers and telephone with means scores of 2.64 and 2.52 respectively have moderate extent accessibility while printers, flash drive, public address system, and electric generator indicated low accessibility. These were supported by mean scores of 1.77, 1.82, 1.80, and 1.79 respectively. All the other constructs have mean scores far below 1.50. The table reveals that the respondents indicated no accessibility to laptop computers, palmtop computers, and fax (facsimile). These were supported by mean scores of 1.01, 1.00, and 1.00 respectively. Also, the respondents indicated that they have no access to photocopiers, internet access, digital camera, and interactive whiteboard (IWB), and radio cassettes for learning business subjects in secondary schools. These were also supported by mean scores of 1.36, 1.00, 1.00, 1.00, and 1.20 respectively. Also, the respondents indicated that they have no access to projectors, modem, TV broadcast, video conferencing, audio/videotapes, scanners, CD-ROM, and Disk player for learning business subjects in secondary schools. Mean scores of 1.26, 1.24, 1.14, 1.00, 1.12, 1.14, 1.17, and 1.18 respectively. In the same way, the respondents indicated that they have no access to available stabilizers, electric typewriters, and uninterrupted power supply (UPS) for learning business subjects in secondary schools. This is supported by mean scores of 1.36, 1.24, and 1.37 respectively. All the 25 items have standard deviation scores ranging from 0.00 to 1.94. This means that the responses of the respondents are not widely spread as it is close to the mean.

Table 6 data has a weighted average mean and standard deviation of 1.37 and 0.47 respectively. This implies that the extent of access to available ICT facilities for learning business subjects in secondary schools in Kwara State is low (mean = 1.37, SD = 0.47). This means that the responses of the respondents are not widely spread as it is close to the mean.

Research Question Three: To what extent are ICT facilities utilized in teaching and learning business subjects in secondary schools in Kwara State?

Table 7: Mean and standard deviation of responses on the extent to which ICT facilities are utilized in teaching and learning business subjects in secondary schools

N_T = 25 and Ns = 336

S/N	The extent to which the following ICT facilities are utilized.	$\overline{X}$	SD	**Remark**
1.	Desktop computers	1.72	0.73	Low Extent
2.	Lap Top computers	1.35	0.57	No Extent
3.	Palmtop computers	1.32	0.13	No Extent
4.	Fax (facsimile)	1.00	0.00	No Extent
5.	Photocopiers	1.72	0.85	Low Extent
6.	Internet access	1.45	0.22	No Extent
7.	Digital camera	1.00	0.00	No Extent
8.	Telephones	2.86	1.17	Moderate Extent
9.	Interactive white board (IWB)	1.25	0.11	No Extent
10.	Radio Cassettes	1.37	0.48	No Extent
11	Projectors	1.60	0.74	Low Extent
12	Modem	1.25	0.49	No Extent
13	TV broadcast	1.42	0.07	No Extent
14	Video conferencing	1.00	0.00	No Extent
15	Audio/Video Tapes	1.28	0.45	No Extent
16	Printers	1.60	0.74	Low Extent
17	Scanners	1.32	0.41	No Extent
18	CD-ROM	1.47	0.68	No Extent
19	Disk Player	1.38	0.41	No Extent
20	Flash Drive	2.46	1.17	Low Extent
21	Public Address system	1.22	0.50	No Extent
22	Stabilizers	1.91	0.87	Low Extent
23	Electric typewriter	1.21	0.46	No Extent
24	Uninterrupted power supply (UPS)	1.92	0.88	Low Extent
25	Electric Generator	1.91	0.88	Low Extent
	Weighted average	**1.52**	**0.52**	**Low Extent**

Source: Field Survey, 2020

Analysis of data in Table 7 shows the mean scores and standard deviation of responses on the extent of utilization of ICT facilities for teaching and learning business subjects in secondary schools. The table revealed that the respondents indicated that only telephone (mean 2.86) is utilized to a moderate extent, while desktop computers, photocopiers, projectors, printers, flash drive, stabilizers, uninterrupted power supply (UPS), and electric generator are utilized to a low extent for teaching and learning business education subjects in secondary

schools. These were supported by mean scores of 1.72, 1.72, 1.60, 1.60, 2.46, 1.91, 1.92, and 1.91 respectively. Similarly, the respondents indicated that laptop computers, palmtop computers, fax (facsimile), internet access, digital camera, Interactive White Board (IWB), and radio cassettes, are utilized to no extent for teaching and learning business subjects in secondary schools. These were also supported by mean scores of 1.35, 1.32, 1.00, 1.00, 1.25, and 1.37 respectively. Also, the respondents indicated that modem, TV broadcast, video conferencing, audio/videotapes, scanners, and CD-ROM are all utilized to No extent for teaching and learning business education subjects in secondary schools. These were supported by mean scores of 1.25, 1.42, 1.00, 1.28, 1.32, and 1.47 respectively. Similarly, the respondents indicated that disk player, public address system, electric typewriter are utilized to No extent for teaching and learning business education subjects in secondary schools (mean = 1.38, 1.22, 1.21, and 1.21 respectively). All the 25 items have standard deviation scores ranging from 0.00 to 0.88. This means that the responses of the respondents are not widespread as it is close to the mean.

Table 7 data has a weighted average mean and standard deviation of 1.52 and 0.52 respectively. This implies that there is a low extent of the utilization of ICT facilities in teaching and learning business education subjects in secondary schools in Kwara State (mean = 1.52, SD = 0.52).

Research Question Four: What is the perception of students on teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools in Kwara State?

Table 8: Mean and standard deviation of responses of students on teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools (Ns = 336)

S/N	Item Statements	$\overline{X}$	SD	Remark
	Teachers employ the:			
1.	use of Face book skill for teaching and learning purposes.	1.30	0.40	No proficiency
2.	use of WhatsApp skill for teaching and learning purposes.	1.40	0.34	No proficiency
3.	use of text messaging skills for teaching and learning purposes.	2.30	0.80	Low proficiency
4.	use of YouTube skill for teaching and learning purposes	1.42	0.34	No proficiency
5.	use of Microsoft Word processing skill	1.07	0.25	No proficiency
6.	use of Microsoft Excel skill	1.04	0.20	No proficiency
7.	use of ICT networking (internet) skill in the classrooms	1.03	0.25	No proficiency
8.	skill in the operation of an overhead projector	1.24	0.43	No proficiency
9.	use of Google management skill in classrooms	1.03	0.32	No proficiency
10.	skill in printing documents for classroom use	2.30	0.83	Low proficiency
11	use of ICT skill in the identification and operation of input devices (e.g. keyboarding, mouse, touch screen)	3.32	0.82	Moderate proficiency
12	use of ICT skills in the identification and operation of output devices (e.g. printer, monitor, speaker, etc.)	2.65	0.95	Moderate proficiency
13	use of ICT skills in the identification and operation of secondary storage (e.g. Hard drive, CD, DVD, etc.)	2.44	0.89	Low proficiency
14	use of ICT skills in copying, cutting, pasting, and deleting document for teaching and office work	2.57	0.84	Moderate proficiency
15	use of ICT skills in creating files and folders	2.79	0.76	Moderate proficiency
16	use of ICT skills in editing documents	2.60	0.91	Moderate proficiency
17	use ICT skills in saving and retrieving documents	2.95	0.79	Moderate proficiency
18	use of ICT skill in bolding, italicizing, underscoring, centering, justifying document.	2.73	0.81	Moderate proficiency
19	use of ICT skill in managing the paper layout	2.77	0.92	Moderate proficiency
20	use of ICT skills in a mail merge.	2.36	1.14	Low proficiency
21	use of ICT skills in speed and accuracy.	2.64	1.07	Moderate proficiency
22	use of ICT skills in ensuring computer security	2.25	0.89	Low proficiency
23	use of ICT skills in applying font size specification.	3.10	0.67	Moderate proficiency
24	use of ICT ability to install software into the computer	1.24	0.43	Low proficiency
25	use of ICT skill in downloading software from web page	1.07	0.26	No proficiency
	Weighted average	**2.06**	**0.65**	**Low Proficiency**

Source: Field Survey, 2020

Analysis of data in Table 8 shows the mean and standard deviation scores of the perception of students on teachers' proficiency in utilizing ICT facilities for teaching business subjects in secondary schools. The Table reveals that the respondents indicated that teachers have No proficiency in the use of Facebook skills, WhatsApp skill, YouTube skill, Microsoft Word processing skill, and downloading software from a web page for teaching purposes (mean = 1.30, 1.40, 1.42, 1.07 and 1.07 respectively). The respondents also indicated that teachers have No proficiency in the use of Microsoft Excel skills, ICT networking (internet) skill, overhead projector, and Google management skill for teaching purposes (mean = 1.04, 1.03, 1.24, and 1.03 (respectively). Table 8 data also reveals that the respondents indicated that teachers have low proficiency in text messaging skill, the printing of documents for classroom use, ICT skills in the identification and operation of secondary storage (e.g. Hard drive, CD, DVD, etc.), mail merge, ICT skills in ensuring computer security and use of ICT ability to install software into the computer (mean =2.30, 2.30, 2.44, 2.36, 2.25, and 1.24 respectively).

Also, the respondents indicated that teachers have moderate proficiency in the use of ICT skill in the identification and operation of input devices (e.g. keyboarding, mouse, touch screen), output devices (e.g. printer, monitor, speaker among others), ICT skills in copying, cutting, pasting and deleting document for teaching and office work as well as creating files and folders for teaching purpose (mean = 3.32, 2.65, 2.57 and 2.79 respectively). Similarly, the respondents indicated that teachers have moderate proficiency in the use of ICT skills in editing documents, saving and retrieving documents, bolding, italicizing, underscoring, centering, justifying document, managing paper layout, speed and accuracy, and applying font size specification for teaching purposes (mean = 2.60, 2.95, 2.73, 2.77, 2.64, and 3.10 respectively). All the 25 items have standard deviation scores ranging from 0.20 to 1.14. This means that the responses of the respondents are not widespread as they are close to the mean.

Data on Table 8 has a weighted average mean and standard deviation of 2.06 and 0.65 respectively. This implies that students perceived that teachers have low proficiency in utilizing ICT facilities for teaching business subjects in secondary schools in Kwara State (mean = 2.06, SD = 0.65). The data reveals that the use of Facebook, WhatsApp, Youtube, and messaging skills score No proficiency or Low proficiency. This is against popular belief where people freely utilize these facilities for communication among friends and relations. It is possible that teachers merely make personal use of some of these ICT facilities (face, book skill, WhatsApp skill, messaging skill, and Youtube skill) but do not use them for teaching and learning purposes in schools.

Research Question Five: To what extent are ICT facilities maintained for teaching and learning business education subjects in secondary schools in Kwara State?

Table 9: Mean and standard deviation of responses on the extent to which ICT facilities are maintained for teaching and learning business subjects in secondary schools $N_T = 25$ and $N_S = 336$

S/N	**Item Statements**	$\overline{X}$	SD	**Remark**
1.	Desktop computers	2.17	0.86	Low maintenance
2.	Laptop computers	1.04	0.75	No maintenance
3.	Palmtop computers	1.04	0.23	No maintenance
4.	Fax (facsimile)	1.00	0.00	No maintenance
5.	Photocopiers	2.43	0.95	Low maintenance
6.	Internet access	1.01	0.09	No maintenance
7.	Digital camera	1.01	0.09	No maintenance
8.	Telephones	2.48	1.01	Low maintenance
9.	Interactive white board (IWB)	1.02	0.18	No maintenance
10.	Radio Cassettes	1.34	0.46	No maintenance
11	Projectors	2.44	0.51	Low maintenance
12	Modem	2.39	0.48	Low maintenance
13	TV broadcast	2.23	0.16	No maintenance
14	Video conferencing	1.02	0.16	No maintenance
15	Audio/Video Tapes	1.22	0.43	No maintenance
16	Printers	2.35	0.52	Low maintenance
17	Scanners	1.18	0.44	No maintenance
18	CD-ROM	1.17	0.39	No maintenance
19	Disk Player	1.09	0.34	No maintenance
20	Flash Drive	1.96	0.83	Low maintenance
21	Public Address system	2.45	0.82	Low maintenance
22	Stabilizers	2.97	0.81	Low maintenance
23	Electric typewriter	1.04	0.28	No maintenance
24	Uninterrupted power supply (UPS)	2.43	0.77	Low maintenance
25	Electric Generator	2.41	0.84	Low maintenance
	Weighted average	**1.72**	**0.50**	**Low maintenance**

Source: Field Survey, 2020

`Analysis of data in Table 9 shows the mean and standard deviation of respondents on the maintenance of ICT facilities for teaching and learning. The table reveals respondents' low maintenance ratings of the following ICT facilities: desktop computers, photocopiers, telephones, projectors, modem, printers, flash drive, public address system, stabilizers, uninterrupted power supply (UPS), an electric generator. These were supported by low mean scores of 2.17, 2.43, 2.48, 2.44, 2.39, 2.35, 1.96, 2.45, 2.97, 2.43, and 2.41 respectively. Also, the respondents indicated No maintenance for laptop computers, palmtop computers, fax (facsimile), internet facility, digital camera, Interactive whiteboard (IWB), and radio cassettes. These were also supported by mean scores of 1.04, 1.04, 1.00, 1.01, 1,01, 1.02, and 1.34

respectively. Also, the respondents indicated that there was No maintenance for other ICT facilities; TV broadcast, video conferencing, audio/videotapes, scanners, CD-ROM, Disk player, and electric typewriter. Mean scores of 2.23, 1.02, 1.22, 1.18, 1.17, 1.09, and 1.04 respectively supported these. All the 25 items have a standard deviation ranging from 0.00 to 1.01. This means that the responses of the respondents are not widespread as it is close to the mean.

Table 9 has a weighted average mean and standard deviation of 1.72 and 0.50 respectively. This implies that there is low maintenance of ICT facilities for teaching and learning business subjects in secondary schools in Kwara State (mean = 1.72, SD = 0.50).

Research Question Six: What are teachers' perceptions of the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools?

Table 10: Mean and standard deviation of responses on teachers' perception of the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools **N_T = 25**

S/N	Item Statements	$\overline{X}$	SD	Remark
1.	School management develops policies, objectives, and plans for ICT tools maintenance.	3.88	0.33	Strongly Agreed
2.	ICT spare tools are procured and kept in store for urgent needs.	3.76	0.52	Strongly Agreed
3.	Teachers and students are appropriately and efficiently trained in the operation of equipment.	3.96	0.20	Strongly Agreed
4.	Staff and students are adequately educated on ICT care and maintenance.	3.96	0.20	Strongly Agreed
5.	Regular inspection of equipment is carried out.	3.96	0.20	Strongly Agreed
6.	Adequate records of maintenance done on ICT tools are kept.	3.92	0.40	Strongly Agreed
7.	Early detection of a fault in machine and tools are done to minimize the cost of maintenance.	3.92	0.40	Strongly Agreed
8.	The Head of the department possesses adequate knowledge of the process of ICT tools maintenance.	4.00	0.00	Strongly Agreed
9.	Unserviceable teaching tools are quickly replaced when noticed.	4.00	0.00	Strongly Agreed
10.	ICT tools are appropriately located.	3.60	0.71	Strongly Agreed
11	There is efficient procurement of appropriate ICT spare parts.	3.76	0.52	Strongly Agreed
12	Experts are used in servicing and maintaining ICT tools.	3.96	0.20	Strongly Agreed
13	An adequate fund is made in the budget for ICT maintenance purposes.	3.96	0.20	Strongly Agreed
14	Prompt repair needed on ICT tools is usually made.	3.96	0.20	Strongly Agreed
15	Facility maintenance is given priority status by the school organization.	3.96	0.20	Strongly Agreed
	Weighted average	**3.90**	**0.29**	**Strongly Agreed**

Source: Field Survey, 2020

Table 10 data reveals that the respondents strongly agreed that school management development of policies, objectives, and plans for ICT tools maintenance are good strategies for maintaining ICT facilities in teaching and learning business subjects (mean = 3.88). The respondents also strongly agreed that ICT spare tools be procured and kept in store for urgent needs, similarly that teachers and students be appropriately and efficiently trained in the operation of equipment (mean = 3.76 and 3.96). Data on the table also showed that the respondents strongly agreed that staff and students be adequately educated on ICT care and maintenance and that regular inspection of equipment is carried out (mean = 3.96, 3.96). Also, the respondents strongly agreed that adequate records of maintenance done on ICT tools be

kept and early detection of a fault in machines and tools are done to minimize the cost of maintenance (mean = 3.92 and 4.00). The respondents also strongly agreed that heads of departments need to possess adequate knowledge of the process of ICT tools maintenance as well as ensure unserviceable teaching tools are quickly replaced when noticed (mean = 4.00 and 4.00), Also the respondents strongly agreed that ICT tools are appropriately located, with efficient procurement of appropriate ICT spare parts (mean = 3.60 and 3.76). The respondents strongly agreed on the use of experts in servicing and maintaining ICT tools, with adequate funds provided for in the budget for ICT maintenance purposes, while prompt repair needed on ICT tools be made, and facility maintenance be given priority status by the school authority (mean = 2.96). All the 15 items have a standard deviation ranging from 0.00 to 0.71. This means that the responses of the respondents are not widely spread as they are close to the mean.

Overall, all the constructs in Table 10 on strategies for maintenance of ICT facilities in teaching and learning business subjects in secondary schools were strongly agreed with, by respondents as the mean scores are far above the fixed decision mean of 2.50. This implies that teachers have a positive perception of the strategies for the maintenance of ICT facilities in teaching and learning business subjects in secondary schools (mean = 3.90, SD = 0.29).

Test of Hypotheses

The six hypotheses of the study were tested using independent samples t-test. The hypotheses were tested at a 0.05 level of significance. The summary of the test of hypotheses are presented in Tables 11 to 16 as follows:

H_{01}: There is no significant difference between the mean ratings of teachers and students on the ICT facilities available for teaching and learning business subjects in Kwara State secondary schools.

Table 11: Summary of independent samples t-test of the difference between the mean rating of teachers and students on the ICT facilities available for teaching and learning business subjects

Group	N	Mean	SD	t-cal	Df	p-value	Decision
Teachers	25	4.00	0.00				
				1.608	359	0.122	H_{05} Not Rejected
Students	336	3.84	0.31				

Source: Field survey, 2020 P>0.05

Analysis of data in Table 11 reveals that there are 25 teachers and 336 students. The teachers and students' responses showed a positive perception towards the ICT facilities available for teaching and learning business subjects in secondary schools ($\overline{X}$ = 4.00; SD = 0.00) and ($\overline{X}$ = 3.84; SD = 0.31). Their responses are close to the mean as the standard deviations are very low. Table 11 reveals that there was no significant difference in the mean rating of teachers and students on the ICT facilities available for teaching and learning business subjects in secondary schools (t_{359} = 1.608, P>0.05), therefore, the null hypothesis was not rejected. This implies that teachers and students did not differ significantly in their perceptions of the ICT facilities available for teaching and learning business subjects in secondary schools. Though there was a slight difference between their mean responses with teachers having higher mean perception, the difference was not statistically significant (mean difference = 0.16).

H_{02}: There is no significant difference between the perception of male and female students on the extent to which students have access to available ICT resources for learning business subjects in secondary schools in Kwara State.

Table 12: Summary of samples t-test of the difference between the perception of male and female students on the extent to which students have access to available ICT resources for learning business subjects in secondary schools

Group	N	Mean	SD	t-cal	Df	p-value	Decision
Male	167	1.60	0.36				
				20.695	334	0.000	H_{01} Rejected
Female	169	1.02	0.04				

Source: Field survey, 2020 P<0.05

Analysis of data in Table 12 also reveals that there are 167 male students and 169 female students. The male and female students responses show that there is low accessibility of available ICT resources for learning business subjects in secondary schools ($\overline{X}$ = 1.60; SD = 0.36) and ($\overline{X}$ = 1.02; SD = 0.04). Their responses are close to the mean as the standard deviations are very low. Table 12 reveals that there was a significant difference in the perceptions of male and female students on the extent to which students have access to available ICT resources for learning business subjects in secondary schools (t_{334} = 20.695, P<0.05). Therefore, the null hypothesis that states that there is no significant difference in the perception of male and female students on the extent to which students have access to available ICT resources for learning business subjects in secondary schools in Kwara State was rejected. This implies that male and female students differ significantly in their responses regarding the extent to which students have access to available ICT resources for learning business subjects in secondary schools. Their responses show that male students rated the extent of access to available ICT resources higher than the female students did (mean difference = 0.58).

H_{03}: There is no significant difference between the mean ratings of teachers and students on the utilization of ICT facilities for teaching and learning business subjects in Kwara State secondary schools.

Table 13: Summary of independent samples t-test of the difference between the mean rating of teachers and students on the utilization of ICT facilities for teaching and learning business subjects

Group	N	Mean	SD	t-cal	Df	p-value	Decision
Teachers	25	1.89	0.55				
				5.133	359	0.000	H_{02} Rejected
Students	336	1.41	0.44				

Source: Field survey, 2020 P<0.05

Analysis of data in Table 13 reveals that there are 25 teachers and 336 students. The teachers and students responses show that there is low extent of utilization of ICT facilities for teaching and learning business subjects in secondary schools ($\overline{X}$ = 1.89; SD = 0.55) and ($\overline{X}$ = 1.41; SD = 0.44). Their responses are close to the mean as the standard deviations are very low. Table 13 reveals that there was a significant difference in the mean ratings of teachers and students on the utilization of ICT facilities for teaching and learning business subjects in secondary schools (t_{359} = 5.133, P<0.05). Therefore, the null hypothesis was rejected. This implied that teachers and students differ significantly in their responses regarding the extent of utilization of ICT facilities for teaching and learning business subjects in secondary schools. Their responses show that teachers rated the extent of utilization of ICT facilities for teaching and learning business subjects in secondary schools higher than the students did (mean difference = 0.11).

H_{04}: There is no significant difference between the mean ratings of perception of male and female students on teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools in Kwara State.

Table 14: Summary of independent samples t-test of the difference between the mean ratings of perception of male and female students on teachers' proficiency in utilizing ICT facilities in teaching business subjects

Group	N	Mean	SD	t-cal	Df	p-value	Decision
Male	167	2.35	0.26				
				23.142	334	0.000	H_{03} Rejected
Female	169	1.58	0.35				

Source: Field survey, 2020 P<0.05

Analysis of data in Table 14 reveals that there are 167 male students and 169 female students. The male and female students' responses show that there is low proficiency of teachers in utilizing ICT facilities in teaching business subjects in secondary schools ($\overline{X}$ = 2.35; SD = 0.26) and ($\overline{X}$ = 1.58; SD = 0.35). Their responses are close to the mean as the standard deviations are very low. Table 14 data reveals that there was a significant difference in the mean rating of male and female students regarding their perception of teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools (t_{334} = 23.142, P<0.05). Therefore, the null hypothesis was rejected. This implies that male and female students differ in their responses regarding their perception of teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools. Their responses showed that male students' perception was rated higher than the female students' perception.

H_{05}: There is no significant difference between the mean ratings of teachers and students on the maintenance of ICT facilities for teaching and learning business subjects in Kwara State secondary schools.

Table 15: Summary of independent samples t-test of the difference between the mean ratings of teachers and students on the maintenance of ICT facilities for teaching and learning business subjects

Group	N	Mean	SD	t-cal	Df	p-value	Decision
Teachers	25	1.87	0.57				
				6.017	359	0.000	H_{04} Rejected
Students	336	1.38	0.37				

Source: Field survey, 2020 P<0.05

Analysis of data in Table 15 reveals that there are 25 teachers and 336 students. The teachers and students responses show that there is low maintenance of ICT facilities for teaching and learning business subjects in secondary schools ($\overline{X}$ = 1.87; SD = 0.57) and ($\overline{X}$ = 1.38; SD = 0.37). Their responses are close to the mean as the standard deviations are very low. The Table reveals that there was a significant difference between the mean rating of teachers and students on the maintenance of ICT facilities for teaching and learning the business subjects in secondary schools (t_{359} = 6.017, P<0.05). Therefore, the null hypothesis was rejected. This implied that teachers and students differ in their responses regarding the extent of maintenance of ICT facilities for teaching and learning business subjects in secondary schools. Their responses show that teachers rated the extent of maintenance of ICT facilities higher than the students did (mean difference = 0.49).

H_{06}: There is no significant difference between the mean ratings of perception of teachers on the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools based on their qualifications and experience.

Table 16: One-way analysis of variance result of a mean perception of teachers on the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools based on their qualification and experience

Teachers' Characteristics		Mean	SD	Df	F	Sig.
Qualification	NCE	3.71	0.89	3,21	1.74	0.325
	B.Sc/B.Ed	3.68	0.91			
	M.Sc/M.Ed	3.69	0.87			
	PhD	3.70	0.86			
Experience	1-5 years	3.45	1.01	4,20	1.750	0.179
	6-10 years	3.49	0.98			
	11-15 years	3.52	0.89			
	16-20 years	3.47	0.97			
	20 years and Above	3.55	0.82			

Source: Field survey, 2020

The result of the analysis of variance as presented in Table 16 shows the mean perception of teachers on the strategies for maintaining ICT facilities in teaching and learning business subjects based on their qualifications and experience. The result shows the ratings on strategies for maintaining ICT facilities in teaching and learning business subjects based on teachers' qualifications ($F_{3,21}$ = 1.74, p>0.05) and based on teachers' experience is ($F_{4,20}$ = 1.750. p>0.05). The fixed p-value is (p=0.05). This means that there was no significant difference in the mean ratings on the perception of teachers on the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools based on their qualifications and experience. This is because the ratings on strategies for maintaining ICT facilities in teaching and learning business subjects based on teachers' qualifications show $F_{3,21}$ = 1.74 at p>0.05. This means that the observed p-value is greater than the Fixed value (0.05). Therefore, there was no significant difference in the perception of teachers based on their qualifications. Also, the table value shows the perception of teachers based on their years of experience ($F_{4,20}$ = 1.750, p>0.05). This means that the observed p-value (0.179) is greater than

the fixed P-value (0.05). There was no significant difference in the perception of teachers based on their years of experience. The hypothesis was therefore not rejected.

Summary of Major Findings

The followings are the summary of the findings of the study:

1. ICT facilities available for teaching and learning business subjects in secondary schools are desktop computers, photocopiers, telephones, projectors, modem, printers, scanners, flash drives, public address systems, stabilizers, Uninterrupted power supply (UPS), and an electric generator. While the following are not available: Laptop computers, palmtop computers, fax (facsimile), internet facility, digital camera, interactive whiteboard (IWB), radio cassettes, modem, TV broadcast, video conferencing, audio/videotapes, CD-ROM and Disk player.
2. Students have low access to available ICT facilities for learning business subjects in secondary schools.
3. ICT facilities are utilized to a low extent in teaching and learning business subjects in secondary schools.
4. Students perceived that teachers have low proficiency in utilizing ICT facilities for teaching business subjects in secondary schools.
5. There is low maintenance of ICT facilities for teaching and learning business subjects in Kwara State secondary schools.
6. Teachers have a positive perception of the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools.
7. There was no significant difference in the perceptions of teachers and students on the ICT resources available for learning business subjects in secondary schools.

8. There was a significant difference in the perceptions of male and female students on the extent to which students have access to available ICT resources for learning business subjects in secondary schools.
9. There was a significant difference in the mean ratings of teachers and students on the utilization of ICT facilities for teaching and learning business subjects in secondary schools.
10. There was a significant difference in the mean ratings of male and female students regarding their perception of teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools.
11. There was a significant difference between the mean ratings of teachers and students on the maintenance of ICT facilities for teaching and learning business subjects in secondary schools.
12. There was no significant difference in the mean ratings of teachers on the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools based on their qualifications and experience.

Discussion of Findings

The findings of the study are discussed in line with the purpose of the study, research questions, and the hypotheses. Findings from respondents on ICT facilities available for teaching and learning business subjects in secondary schools in Kwara State reveal that Desktop computers, Photocopiers, Mobile phones, Projectors, Modems, Printers, Scanners, Flash Drive, Public Address System, Stabilizers, Uninterrupted power supply (UPS) and Electric Generators are available for teaching and learning business subjects. The data revealed that thirteen out of the twenty-five constructs were not available in secondary schools (see Table 5).

The result of hypothesis one on the perception of male and female students on the ICT facilities available for teaching and learning business subjects in Kwara State secondary schools reveals that there is no significant difference in the perception of teachers and students. The teachers and students' responses shared similar perceptions toward the ICT facilities available for teaching and learning business subjects in secondary schools. The responses are close to the mean as the standard deviations are very low. Therefore, the null hypothesis was not rejected. This implies that teachers and students did not differ significantly in their perceptions of the ICT facilities available for teaching and learning business subjects in secondary schools.

This study confirms the earlier studies of Subair and Bada (2014) that discovered that inadequate provision of ICT facilities in schools is a major challenge. Schools lacked vital ICT resources to facilitate teaching and learning in secondary schools. The study also added that the school principals and teachers are aware of the deficiencies but are waiting on the State Government to provide the resources. The ICT facilities in secondary schools are grossly inadequate for teachers' and students' use in Kwara State secondary schools.

The analysis of responses to research question two reveals that students have low access to the available ICT facilities for teaching and learning business subjects in secondary schools in Kwara State. The students have moderate access to only Desktop computers and Telephones. Students have low access to Printers, Flash Drive, Public address system and Electric generator while students have no access at all to Laptop computers, Palmtop computers, Fax (facsimile), photocopiers, Internet facility, Digital camera, Interactive whiteboard (IWB), Radio Cassettes, Projectors, Modem, TV broadcast and video conferencing. Other facilities with no access include Audio/Video Tapes, Scanners, CD-ROM, Disk Player, Stabilizers, Electric typewriters, and uninterrupted power supply (UPS). There was generally low accessibility to the entire construct with an average mean score of ($\overline{X} = 1.37$).

The result of the analysis of hypothesis two on the perception of male and female students on the extent to which students have access to available ICT facilities for learning business subjects in secondary schools revealed a uniform assessment of low accessibility to ICT facilities although a significant difference exists in the perception of both groups of respondents. Male and female respondents differ in their responses regarding the extent to which students have access to available ICT resources. This difference might have occurred due to duty posts usually given to favor male students at the expense of female students in schools. This study confirms earlier studies of Aiyelotan and Sogbade (2014) and Rasaq (2018) who asserted that access to ICT laboratory is a factor that discourages students when learning computers in schools. The study showed that computers are sometimes locked up in-store or computer laboratories when teachers are not in the class. The researchers recommended that ICT facilities provided for training should be at easy reach of the students for practice.

Findings on the extent to which ICT facilities are utilized in teaching and learning business education subjects in secondary schools in Kwara State (see Table 7) shows that only the Telephone was moderately utilized in the teaching and learning process. This may be due to the free access of some students themselves to personal handset telephones. Facilities such as Desktop computers, Photocopiers, Projectors, Printers, Flash Drive, Stabilizers, Uninterrupted power supply (UPS) and Electrical Generator were utilized to a low extent while others such as Palmtop computers, Fax (facsimile), Internet facility, Digital camera, Interactive whiteboard (IWB), Radio Cassettes, Modem, TV broadcast and Video conferencing were utilized to no extent at all. Other facilities with no utilization at all include Audio/Video Tapes, Scanners, CD-ROM, Disk players, Public Address System, and Electric typewriters. This result revealed that students have not seen or utilized some of the ICT facilities in their schools. This implies that students were not able to acquire desirable skills through the utilization of these

ICT facilities in schools. This implies that the students were not able to acquire practical training through the use of ICT facilities.

Analysis of hypothesis three, on the difference between the mean ratings of teachers and students on the utilization of the ICT facilities for teaching and learning business subjects in Kwara State secondary schools, shows a low extent utilization rating of ICT facilities for teaching and learning. There was a significant difference in the mean ratings of teachers and students on the utilization of ICT facilities as the null hypothesis was rejected. That is, both teachers and students differ in their perception of the utilization of ICT facilities. The study revealed that teachers rated the extent of utilization higher than the students. This may be because students have not gained much from the utilization of the ICT facilities provided by the school despite the effort of the teachers. This study confirms earlier studies of Aitokhuchi and Ojogho (2014) and Nwachukwu (2016) who said that students are not adequately exposed to the utilization of ICT facilities in schools. The result of their study revealed that respondents were discouraged with the pace of utilization of ICT facilities in schools. Their finding also reveals that students who effectively utilize ICT in the learning process perform significantly better than those who did not. Students' academic performance may likely have been influenced negatively, in a way, by the low level of utilization of ICT facilities in secondary schools.

Findings on the perception of students on teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools in Kwara State (Table 8) reveals that responses on 16 out of the 25 constructs indicate low-level proficiency of teachers in utilizing the ICT facilities in teaching business subjects in Kwara State secondary schools. All the 25 items have a standard deviation ranging from 0.00 to 1.14. This means that the responses of the respondents are not widespread as it is close to the mean with a weighted average mean of 2.06. The result reveals no proficiency in the use of Facebook skills, WhatsApp skill,

YouTube skill, and Microsoft Word processing skills for teaching purposes. This result is against popular opinion where many people freely utilize these ICT facilities for communication and personal business contacts. The respondents also indicated that teachers have no proficiency in the use of Microsoft Excel skills, ICT networking (internet) skills, operation of the overhead projector, Google management skill, and skill in downloading documents for use in the classroom for teaching purposes. Table 8 also reveals that the respondents indicated that teachers have low proficiency in the use of text messaging skill, skill in printing documents, ICT skills in the identification and operation of secondary storage (e.g. Hard drive, CD, DVD among others), mail merge, ICT skills in ensuring computer security and use of ICT ability to install software into the computer for teaching purposes. This reveals that business education teachers are not skillful in utilizing the above-stated facilities in teaching business subjects.

However, respondents indicated that teachers have moderate proficiency in the use of ICT skill in the identification and operation of input devices (e.g. keyboarding, mouse, touch screen), output devices (e.g. printer, monitor, speaker among others), ICT skills in copying, cutting, pasting and deleting document for teaching and office work as well as creating files and folders for teaching purposes. Similarly, the respondents indicated that teachers have moderate proficiency in the use of ICT skills in editing documents, saving and retrieving documents, bolding, italicizing, underscoring, centering, justifying documents, managing paper layout, speed, and accuracy, and applying font size specification for teaching purposes. This result shows that some teachers possess basic ICT skills for teaching but probably lagging in high proficiency in them. The teachers, therefore, require additional advanced training in ICT skills to improve performance and utilization of ICT for teaching and learning purposes in the schools.

Analysis of Hypothesis 3 reveals that there was a significant difference between the mean rating of the perception of male and female students on teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools in Kwara State. The null hypothesis was therefore rejected ($t = 23.142$, $p<0.05$). The difference might be due to the interest each of the group members has in their teachers. Both male and female respondents, however, rated teachers' proficiency low in utilizing ICT facilities for teaching business subjects.

This study is consistent with the study of Ndinechi and Ementa (2013) which identified 16-word processing skills rated by respondents. Out of this number, only eight skills were rated by respondents as well taught by teachers while the other eight constructs were rated low. The study affirms that students are poorly taught in some of the word processing skills. This result shows that the teachers themselves are not skillful in the utilization of ICT facilities for teaching and learning.

Also, the result of the findings on the extent to which ICT facilities are maintained for teaching and learning business subjects in secondary schools reveals respondents' uniformity in the low ratings of the maintenance of ICT facilities for teaching and learning business subjects. All the 25 item constructs were rated low in terms of maintenance. This, therefore, implies that respondents rated the maintenance of ICT facilities in secondary schools in Kwara State as low.

Furthermore, the null hypothesis which says there is no significant difference between the mean rating of teachers and students on the maintenance of ICT facilities for teaching and learning business subjects in Kwara State secondary schools was rejected ($t = 6.017$, $p<0.05$). Teacher respondents rate the extent of maintenance of ICT facilities higher than that of the students (0.49). The higher rating might be due to the little efforts put in by the teachers themselves to maintain the ICT facilities they use in the schools.

Findings on teachers' perceptions of the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools based on teachers' characteristics show that all the teachers were unanimous or strongly agreed with all the constructs in Table 10 as useful strategies for ICT facilities maintenance for teaching and learning business subjects in secondary schools. The uniform agreement results from the ratings of the constructs with mean scores far above the fixed decision rule. The study revealed that teachers have positive perceptions, (that is teachers agreed with the strategies identified) about the maintenance strategies for ICT facilities in secondary schools.

Analysis of null Hypothesis 6, which says there is no significant difference in the mean ratings of perception of teachers on the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools based on their qualifications and experience. The result of the analysis of variance as presented in Table 16 shows the mean ratings of teachers on the strategies for maintaining ICT facilities in teaching and learning business subjects based on their qualifications and experience. The result shows that strategies for maintaining ICT facilities in teaching and learning business subjects based on teachers' qualifications and teachers' experience are not rejected. This means that there is no significant difference in the mean rating of the perception of teachers on the strategies for maintaining ICT facilities in teaching and learning business subjects in secondary schools based on their qualifications and experience. The null hypothesis was not rejected. This means that teachers do not significantly differ in their perceptions of the strategies for maintaining ICT facilities based on their qualifications and year of teaching experience in teaching business subjects in Kwara State secondary schools. Both classes of respondents were in agreement with the need to develop the maintenance strategies that can tackle the problems of ICT facility maintenance.

This result differs from the study of Papaioannou (2011) who explored the attitude of teachers and school administrators towards the maintenance of ICT facilities as well as their

perception about factors that facilitate or inhibit ICT utilization in schools in Cyprus. The study revealed several statistically significant differences across gender, teaching experience and academic qualifications, access to a computer, and the internet on ICT for teaching and learning. The study revealed that even though teachers and principals value the importance of ICT in the teaching and learning process, they still need more tailor-made, in-service training and incentives to manage ICT facilities for effective utilization and maintenance.

In a nutshell, the broad implication of the study is that in respect to teaching and learning business subjects in secondary schools, ICT facilities are generally not available, barely utilized, and poorly maintained. This implies that tomorrow's business teachers and economic leaders are being trained with yesterday's tools. This presents great peril for the nation's educational and economic growth.

In the developed and rapidly-developing world, ICT is the instrument of choice in the effort to effectively prepare the next generation of economic leaders. ICT is a tree in which students in other nations climb and are being trained with sophisticated ICT tools like robotics and artificial intelligence, in addition to other ICT facilities. Nigerian business students do not have access to the most basic ICT tools! This is a definitive challenge which must be expeditiously addressed.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

This chapter is presented under the following sub-headings:

Summary of findings

Conclusion

Recommendations

Suggestion for Further Research

Summary of Findings

Information and communication technology (ICT) has become a powerful driving force for economic and educational development. It is a powerful tool for training, which links the learner with global happenings and enables the teacher to attain varied educational objectives. The National Information Technology Development Agency (NITA) is charged with the implementation of national policy on the integration of information technology (IT) into mainstream education and training; and to empower the youth with IT skills and to prepare them for global competitiveness (Adomi, 2011). To attain these objectives, it is important to ascertain that the ICT facilities essential for teaching and learning are available and utilized. Though there is good knowledge about how the utilization of ICT is growing in other developed nations, very little information is available as to how ICT is being used and maintained in secondary schools in Kwara State. The specific purposes were to identify ICT facilities available for teaching and learning business subjects, the extent of access to the available ICT facilities, and the extent of utilization of the ICT facilities for teaching and learning. The study determined business students' perception of teachers' proficiency in utilizing ICT facilities as well as examining the extent of maintenance of ICT facilities for teaching and learning business subjects in secondary schools in Kwara State. The study also determined the teachers'

perception of the strategies for maintaining ICT facilities in teaching and learning business subjects.

In line with the specific purposes, six research questions, and six null hypotheses guided the study to statistically validate the hypotheses and answer the research questions. The research design adopted for the study was a descriptive survey of both business students and teachers. The target population of 11,168 respondents comprised 10,412 students (male 5,536 and female 4,876) and 755 teachers (male 402 and female 353). The sample size was 361 (25 teachers and 336 students). The students sampled comprise 2019/2020 final year senior secondary school students in Kwara State. The sampled size was determined by The Research Advisors' Sample size table. The study employed a multi-stage sampling technique involving a stratified sampling technique, a simple random sampling technique, and a proportional sampling technique. A stratified sampling technique was used to select the Local Government Areas while the proportional random sampling technique was used to sample the schools and students used for the study.

A researcher structured questionnaires were used (for students and teachers) tagged "Assessment of Availability, Utilization, and Maintenance of ICT Facilities in secondary schools Questionnaire (AAUMICTFQ)". Each of the two instruments was divided into two sections A and B. Section A of each instrument consists of the demographic data of the respondents while section B was further divided into three parts based on the research questions formulated for the study. Three senior lecturers from the Faculty of Education, Kwara State University, Malete did the content validation of the instrument before administration. The data collected were later subjected to statistical analysis to determine the reliability of the instrument with the use of Cronbach's Alpha reliability method and the reliability coefficient of $r = 0.82$ and $r = 0.86$ was obtained from students' and teachers' instrument. Frequency counts and percentage distribution were used to analyze demographic data of respondents based on gender

and status. The six research questions were answered with the use of mean and standard deviation while independent samples t-test was used to test the null hypotheses at a 0.05 probability level of significance. The major findings revealed by the study are:

1. ICT facilities available for teaching and learning business subjects in secondary schools are desktop computers, photocopiers, telephones, projectors, modem, printers, scanners, flash drives, public address systems, stabilizers, Uninterrupted power supply (UPS), and electric generator. The required ICT facilities that are not available for teaching and learning are laptop computers, palmtop computers, fax (facsimile), internet facility, digital camera, interactive whiteboard, radio Cassettes, TV broadcast, video conferencing, audio/videotapes, CD-ROM, disk player, an electric typewriter.
2. Students have low access to available ICT facilities for learning business subjects in secondary schools.
3. ICT facilities are utilized to a low extent in teaching and learning business education subjects in Kwara State secondary schools.
4. Students perceived that teachers have low proficiency in utilizing ICT facilities for teaching business subjects in secondary schools.
5. There was a significant difference in the perception of male and female students on the extent to which students have access to available ICT resources for learning business subjects in secondary schools.
6. There was a significant difference between the mean ratings of teachers and students on the utilization of ICT facilities for teaching and learning business subjects in secondary schools.
7. There was a significant difference between the mean rating of male and female students regarding their perception of teachers' proficiency in utilizing ICT facilities in teaching business subjects in secondary schools.

Conclusion

The findings of the study revealed that there are inadequate ICT facilities for teaching and learning business subjects in Kwara State secondary schools. Students have low access to the identified available ICT facilities for learning business subjects. The findings also showed that there is a low extent of utilization of the ICT facilities for teaching and learning business education subjects. Secondary school teachers rarely utilize modern ICT technologies to enhance teaching and learning. The students also perceived that teachers have low proficiency in utilizing ICT facilities for teaching business subjects. Teachers' low level of utilization of ICT facilities might be due to inadequate mastery of the new technologies. Based on the study, it was concluded that the teaching and learning in the secondary schools are being done using the traditional method (without ICT facilities) which does not support 21st-century teaching and learning. This implies that secondary schools have been graduating students lacking adequate ICT skills which may result in great disadvantages wherever these skills are required.

The study also showed low maintenance of ICT facilities for teaching and learning business education subjects in secondary schools. This implies that even when some facilities are available, they are not properly maintained which will still not serve their purpose for a long time, thus affecting teaching and learning negatively. However, teachers agreed about the strategies to be adopted for maintaining ICT facilities in teaching and learning business subjects in secondary schools. This implies that there is a pathway for resolving the challenges of maintenance of ICT facilities for teaching and learning business subjects in secondary schools

Recommendations

The following recommendations are given based on the findings of the study:

1. The Kwara State government should procure and make available appropriate ICT facilities such as laptop computers, palmtop computers, fax facsimile machine, internet facilities, digital camera, interactive whiteboard, radio cassette, TV broadcast, Video

conferencing, Audio/Video Tapes, and Disk player; (see Table 5), for teaching and learning business subjects in all public secondary schools. The schools are enjoined to partner with philanthropists and other organizations that can assist in the provision of appropriate ICT facilities for their schools.

2. The School principals and heads of departments should allow students access to the few school ICT facilities (computer room) for teaching and learning purposes.
3. Teachers and the heads of departments should ensure the effective utilization of the school ICT facilities in the teaching process.
4. Teachers should be encouraged by the school authorities to acquire new skills and improve their old skills in the use of ICT for teaching and learning. Schools should partner with NGOs and educational organizations to organize workshops for teachers.
5. The Ministry of Education should organize seminars and workshops in every local government area for business education teachers, to learn new skills in ICT.
6. Adequate supervision and maintenance of ICT facilities should be carried out by principals, heads of department, and subject teachers to ensure the adequate functioning of all ICT facilities in schools.

Suggestion for Further Study

In view of the limitation of this study, the researcher suggests an extension of the scope of the study to cover other geographical areas and states in Nigeria. Again, studies on the availability, utilization, and maintenance of ICT facilities at other levels of education could be carried out.

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APPENDIX A

LETTER OF REQUEST FOR VALIDATION

Dept. of Business and Entrepreneurship Education,
Kwara State University,
Malete,
Kwara State

18th March, 2019

Dear Sir,

Request for validation of instrument

I am a postgraduate student in the Department of Business and Entrepreneurship Education, Kwara State University, Malete, currently undertaking a research project on the **Assessment of availability, utilization and maintenance of ICT facilities for teaching and learning Business subjects in Kwara State Secondary Schools.**

Attached is a draft copy of the questionnaire, purpose of the study, research questions and hypotheses designed for the study. You are requested to please vet the items for clarity, relevance and total coverage of the items of the instrument in addressing the topic. Please you can delete, alter or add any item as considered suitable in any section of the instrument.

Your contribution towards the success of this work is highly appreciated.

Thank you.

Yours faithfully,

Michael Olaitan KEHINDE.
(15/27PBE007)

APPENDIX B

KWARA STATE UNIVERSITY, MALETE
DEPARTMENT OF BUSINESS & ENTREPRENEURSHIP EDUCATION
COLLEGE OF EDUCATION
P.M.B. 1530, ILORIN, KWARA STATE, NIGERIA

Head of Department: Prof. Titus A. Umoru, PhD *(FABEN)*,
Professor of Business Education

Phone: +2348033519030, +2348059272084

Our Ref............................ ....*Your Ref*: .... *Date* 09 December, 2019

....

....

....

Dear Sir/Madam,

LETTER OF INTRODUCTION: MICHAEL.O.KEHINDE

This is to introduce **MICHAEL.O.KEHINDE** (with matriculation number **15/27PBE/007** as a student of the Department of Business and Entrepreneurship Education, Kwara State University, Malete. He is a Postgraduate student working on his research project on topic: Assessment of Availability, Utilization and Maintenance of ICT Facilities for Teaching and Learning Business Subjects in Secondary Schools in Kwara State He needs some information to facilitate her research work. Please kindly assist him. Thank you

For

Professor T.A. Umoru
Head of Department

APPENDIX C

KWARA STATE UNIVERSITY, MALETE
FACULTY OF EDUCATION
DEPARTMENT OF BUSINESS AND ENTREPRENEURSHIP EDUCATION
TEACHERS QUESTIONNAIRE

AVAILABILITY, UTILIZATION AND MAINTENANCE OF ICT FACILITIES IN SECONDARY SCHOOLS QUESTIONNAIRE (AAUMICTFQ)

Dear Respondent,

You are requested to please read and complete this form by ticking the item that best describe your personal opinion on the above subject. The information supplied will be used strictly for academic purposes and such information will be treated confidentially. Thank you.

M. O. KEHINDE

SECTION A

Instruction: Fill in by writing or ticking as appropriate, the most correct option.

1. Name of School…….
2. Position: Teaching Staff ()
3. Gender Male ()
   Female ()
4. Years of Teaching Experience:
   Less than 5 years ()
   6 -10 years ()
   11- 15 years ()
   16- 20 years ()
   20 and above years ()

Teacher's Qualification: NCE ()
Bsc/B.Ed ()
M.Ed ()
Ph.D. ()

KEY:

VLE - Utilized to a Very Large Extent

ME- Utilized to a Moderate Extent

LE– Utilized to Low Extent

NA –Not Utilized at all

Please Tick from the list, Information and Communication (ICT) facilities available and extent of utilization in your school

S/N	ICTFACILITIES	AVAILABLE	NOT AVAILABLE	LEVEL OF UTILIZATION			
				VLE	ME	LE	NA
1	Desktop computers						
2	Lap Top computers						
3	Palmtop computers						
4	Fax (facsimile)						
5	Photocopiers						
6	Internet Access						
7	Digital camera						
8	Telephones						
9	Interactive white board (IWB)						
10	Radio Cassettes						
11	Projectors						

12	Modem						
13	TV broadcast						
14	Video conferencing						
15	Audio/Video Tapes						
16	Printers						
17	Scanners						
18	CD-Rom						
19	Disk Player						
20	Flash Drive						
21	Public Address system						
22	Stabilizers						
23	Electric typewriter						
24	Uninterrupted power supply (UPS)						
25	Electric Generator						

KEY:

AM – Adequate maintenance

MM -Moderate maintenance

LM – Low maintenance

NM – No maintenance at all

Tick from the list, Information and Communication (ICT) facilities indicating extent of maintenance in your school

S/N	ICT FACILITIES	LEVEL OF MAINTENANCE OF ICT			
		AM	MM	LM	NM
1	Desktop computers				
2	Lap Top computers				
3	Palmtop computers				
4	Fax (facsimile)				
5	Photocopiers				
6	Internet Access				
7	Digital Cameras				
8	Telephones				
9	Interactive white board (IWB)				
10	Radio Cassettes				
11	Projectors				
12	Projector screen				
13	TV broadcast				
14	Video conferencing				
15	Audio/Video Tapes				
16	Printers				
17	Scanners				
18	CD-ROM				
19	Disk Player				
20	Flash Drive				
21	Public Address system				
22	Stabilizers				
23	Electric typewriters				
24	Uninterrupted power supply (UPS)				
25	Electric Generator				

KEY
SA - Strongly agree
A -Agree
D -Disagree
SD - Strongly Disagree

Perception of teachers on the strategies for maintenance of ICT facilities in secondary schools

S/N	ITEM	SA	A	D	SD
1	School management develops policies, objectives, and plan for ICT tools maintenance.				
2.	ICT spare tools are procured and kept in store for urgent needs.				
3	Teachers and students are appropriately and efficiently trained in the operation of equipment.				
4	Staff and students are adequately educated on ICT care and maintenance.				
5	Regular inspection of equipment is carried out.				
6	Adequate records of maintenance done on ICT tools are kept.				

7	Early detection of fault in machine and tools are done to minimize cost of maintenance.				
8	Head of department possess adequate knowledge on the process of ICT tools maintenance.				
9	Unserviceable teaching tools are quickly replaced when noticed.				
10	ICT tools are appropriately located.				
11	There is efficient procurement of appropriate ICT spare parts.				
12	Experts are used in servicing and maintaining ICT tools.				
13	Adequate fund is made in the budget for ICT maintenance purposes.				
14	Prompt repair needed on ICT tools are usually made.				
15	Facility maintenance is given priority status by the school organization.				

APPENDIX D

KWARA STATE UNIVERSITY, MALETE
FACULTY OF EDUCATION
DEPARTMENT OF BUSINESS AND ENTREPRENEURSHIP EDUCATION
STUDENTS QUESTIONNAIRE

AVAILABILITY, UTILIZATION AND MAINTENANCE OF ICT FACILITIES IN SECONDARY SCHOOLS IN KWARA STATE

Respondent,

You are requested to please read and complete this form by ticking the item that best describe your personal opinion on the above subject. The information supplied will be used strictly for academic purposes and such information will be treated confidentially. Thank you.

M. O. KEHINDE

SECTION A

Instruction: Fill in by writing or tick as appropriate the most correct option.

1. Name of School…….
2. Gender Male ()
   Female ()

SECTION B

KEY:

VLE - Very Large Extent

ME - Moderate Extent

LE - Low Extent

NA - No Extent

Tick from the list Information and Communication (ICT) facilities available and utilized in your school

S/N	ICT FACILITIES	AVAILABLE	NOT AVAILABLE	LEVEL OF UTILIZATION			
				VLE	ME	LE	NA
1	Desktop computers						
2	Lap Top computers						
3	Palmtop computers						
4	Fax (facsimile)						
5	Photocopiers						
6	Internet Access						
7	Digital cameras						
8	Mobile phones						
9	Interactive white board (IWB)						
10	Radio Cassettes						
11	Projectors						
12	Modem						
13	TV broadcast						
14	Video conferencing						
15	Audio/Video Tapes						
16	Printers						
17	Scanners						
18	CD-Rom						
19	Disk Player						
20	Flash Drive						
21	Public Address system						
22	Stabilizers						
23	Electric typewriter						
24	Uninterrupted power supply (UPS)						
25	Electric Generator						

KEY:

AM – Adequate maintenance

MM - Moderate maintenance

LM – Low maintenance

NM – No maintenance at all

Tick from the list, Information and Communication (ICT) facilities indicating extent of maintenance in your school

S/N	ICT FACILITIES	LEVEL OF MAINTENANCE OF ICT			
		AM	MM	LM	NM
1	Desktop computers				
2	Lap Top computers				
3	Palmtop computers				
4	Fax (facsimile)				
5	Photocopiers				
6	Internet Access				
7	Digital Cameras				
8	Telephones				
9	Interactive white board (IWB)				
10	Radio Cassettes				
11	Projectors				
12	Projector screen				
13	TV broadcast				
14	Video conferencing				
15	Audio/Video Tapes				
16	Printers				
17	Scanners				
18	CD-ROM				
19	Disk Player				
20	Flash Drive				
21	Public Address system				
22	Stabilizers				
23	Electric typewriters				
24	Uninterrupted power supply (UPS)				
25	Electric Generator				

Perception of students on teachers' proficiency in utilizing ICT facilities

KEY

HP – High proficiency

MP – Moderate proficiency

LP – Low proficiency

NP – No proficiency at all

Perception of students on teachers' proficiency in utilizing ICT facilities for teaching and learning

S/N	ITEM Teachers employ the:	HP	MP	LP	NP
1	use of Face book skill for teaching and learning purposes.				
2	use of Whats App skill for teaching and learning purposes.				
3	use of text messaging skill for teaching and learning purposes.				
4	use of You tube skill for teaching and learning purposes				
5	use of Microsoft Word processing skill				
6	use of Microsoft Excel skill				
7	use of ICT networking (internet) skill in the classrooms				
8	skill in the operation of overhead projector				
9	use of Google management skill in classrooms				
10	skill in printing documents for classroom use				
11	use of ICT skill in the identification and operation of input devices (e.g. keyboarding, mouse, touch screen)				
12	use of ICT skills in the identification and operation of output devices (e.g. printer, monitor, speaker etc)				
13	use of ICT skills in the identification and operation of secondary storage (e.g. Hard drive, CD, DVD etc)				
14	use of ICT skills in copying, cutting, pasting and deleting document for teaching and office work				
15	use of ICT skills in creating files and folders				
16	use of ICT skills in editing documents				
17	use ICT skills in saving and retrieving documents				
18	use of ICT skill in bolding, italicizing, underscoring, centering, justifying document.				
19	use of ICT skill in managing paper layout				
20	use of ICT skill in mail merge.				
21	use of ICT skills in speed and accuracy.				
22	use of ICT skills in ensuring computer security				
23	use of ICT skills in applying font size specification.				
24	use of ICT ability to install software into the computer				
25	use of ICT skill in downloading software from web page				

KEY:
AA – Adequate free Access
MA -Moderate free Access
LA – Low free Access

NA – No free Access at all

Perception of students on free access to available ICT resources for learning business subjects

S/N	ICT FACILITIES	**LEVEL OF FREE ACCESS TO ICT FACILITIES**			
		AA	MA	LA	NA
1	Desktop computers				
2	Lap Top computers				
3	Palmtop computers				
4	Fax (facsimile)				
5	Photocopiers				
6	Internet Access				
7	Digital Cameras				
8	Telephones				
9	Interactive white board (IWB)				
10	Radio Cassettes				
11	Projectors				
12	Projector screen				
13	TV broadcast				
14	Video conferencing				
15	Audio/Video Tapes				
16	Printers				
17	Scanners				
18	CD-ROM				
19	Disk Player				
20	Flash Drive				
21	Public Address system				
22	Stabilizers				
23	Electric typewriters				
24	Uninterrupted power supply (UPS)				
25	Electric Generator				

APPENDIX E

```
DATASET ACTIVATE DataSet1.
SAVE OUTFILE='C:\Users\ISRAEL\Documents\reliab. result\MR KEHINDE--STUDENTS.sav'
/COMPRESSED.
RELIABILITY
/VARIABLES=Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20 Q21
Q22 Q23 Q24
Q25 Q26 Q27 Q28 Q29 Q30 Q31 Q32 Q33 Q34 Q35 Q36 Q37 Q38 Q39 Q40 Q41 Q42 Q43 Q44 Q45
Q46 Q47 Q48 Q49
Q50 Q51 Q52 Q53 Q54 Q55 Q56 Q57 Q58 Q59 Q60 Q61 Q62 Q63 Q64 Q65
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE.
```

Reliability

Warnings

Scale has zero variance items.

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	4	100.0
	Excluded[a]	0	.0
	Total	4	100.0

a. List wise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.821	65

APPENDIX F

Sample Size Table*

Required Sample Size†

Population Size	Confidence = 95% Margin of Error				Confidence = 99% Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1141	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678	1176	3288	586	1066	1734	3842
7,500	365	710	1275	4211	610	1147	1960	5165
10,000	370	727	1332	4899	622	1193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	381	772	1491	8056	655	1318	2520	12455
75,000	382	776	1506	8514	658	1330	2563	13583
100,000	383	778	1513	8762	659	1336	2585	14227
250,000	384	782	1527	9248	662	1347	2626	15555
500,000	384	783	1532	9423	663	1350	2640	16055
1,000,000	384	783	1534	9512	663	1352	2647	16317
2,500,000	384	784	1536	9567	663	1353	2651	16478
10,000,000	384	784	1536	9594	663	1354	2653	16560
100,000,000	384	784	1537	9603	663	1354	2654	16584
300,000,000	384	784	1537	9603	663	1354	2654	16586