INVESTIGATING TECHNOLOGY INTEGRATION IN BUSINESS EDUCATION IN NIGERIA SECONDARY SCHOOLS: A CRITICAL ANALYSIS

BY

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DECLARATION

I, Clinton Chidiebere Anyanwu, declare that this thesis is my own work, and has not been submitted for any degree at any other university.

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DEDICATION

I dedicate this research report to my lovely wife, and my sons

Stella Ezinne Anyanwu

Chimdumebi Chidiebere Anyanwu

Chimdiebube Chidiebere Anyanwu

And

my parents

Ichie & Lolo Canice Anaelechi Anyanwu

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ABSTRACT

Secondary education is a vital part of a virtuous circle of economic growth within the context of a globalised knowledge economy. In Nigeria, the education that is offered at this level has different philosophies or what is described as two purposes. The one purpose is to prepare pupils to exit school with the necessary skills that will prepare them to find employment, and the other is to prepare them to continue with academic careers in higher education (Moja, 2000; Ekpenyong, 1997). Business Education at this level represents a broad and diverse discipline that is included in all types of educational delivery systems. The teaching of Business Education entails teaching learners the essentials, rudiments, assumptions and methods of business. The objectives of teaching Business Education in secondary schools is that the learner may, after completing the junior or senior secondary school have an opportunity for a job in a business organisation or/an apprenticeship in industry (NERDC, 2011; Ministry of Education, 2004), and also to train business-oriented learners who can be self-reliant in the future (Alabi, 2014).

Yet, numerous Business Education secondary school graduates are finding it difficult to cope with their job requirements as the world is changing as a result of technological and economic advances (Adamu, 2015). This is as a result of poor exposure or ill-equipped technological knowledge and skills during their school years (Akaeze, 2014). This creates peculiar problems and challenges for Nigerian Business Education learners as they see themselves not suitable for employment as they lack necessary technological skills to work in a modern-day industry. In addition, numerous challenges have been highlighted as affecting teaching and learning of Business Education in the Nigerian secondary schools (Akaeze, 2014; Ugwuogo, 2014 & Okoro, 2014). Studies have identified lack of teaching and learning equipment, such as computer accessories, internet facilities, and other technological resources as major problems that face Business Education in Nigerian secondary schools (Akpan, Umanah, Umoudo & Ukut, 2014; Gidado & Akaeze, 2014; Okoro, 2014). Business Education teachers in Nigeria should adopt interactive and participative teaching methodologies that are up to date and internationally competitive (Nawaz & Gomes, 2014). Hence, it was deemed necessary for the study to investigate technology integration in Business Education in Nigerian secondary schools.

Drawing from the theoretical frameworks of technological pedagogical content knowledge (TPACK), and unified theory of acceptance and use of technology (UTAUT), the study

observes teachers' level of technology use in different levels of Business Education classrooms. Using a mixed-methods sequential explanatory design, probability and purposive sampling, Business Education teachers in secondary schools as the participants, were found not integrating technology in their teaching due to non-availability of technologies in the schools, not possessing technological knowledge (TK), technological content knowledge, (TCK), and technological pedagogical knowledge (TPK), according to the TPACK framework. An analysis of constructs from UTAUT, revealed that there is a lack of facilitating conditions to enable technology use in the teaching and learning of Business Education in secondary schools in Nigeria. The implication of the study findings is that poor investment in technology integration in secondary schools in Nigeria affects pedagogical implementations, and effective teaching and learning of Business Education subjects. The study concludes that if facilitating conditions are considered and made available, together with professional development to address the shortfalls in terms of TPACK, technology integration into the teaching and learning of Business Education will become a reality in secondary schools in Nigeria.

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LIST OF ABBREVIATIONS AND ACRONYMS

ATSE	Australian Academy of technological sciences and engineering
CK	Content Knowledge
CHE	Council on Higher Education
DoE	Department of Education
DOI	Diffusion of innovation theory
EMS	Economic and Management Sciences
EF	Effort expectancy
FC	Facilitating conditions
FMST	Federal Ministry of Science and Technology
FRN	Federal Republic of Nigeria
FITness	Fluency of Information Technology
FET	Further Education and Training
IT	Information technologies
ICT	Information, and Communication Technology
IP	Intellectual Property
ISTE	International Society for Technology in Education
LGA	Local government area
MPCU	Model of personal computer usage
NBS	National bureau statistics

NABTEB	National Business and Technical Examination Board	
NBC	National Business Certificate	
NECO	National Examinations Council	
NPE	National Policy on Education	
NRC	National Research Council	
NSI	National System of Innovation	
NTC	National Technical Examination	
NERDC	Nigeria Education Research and Development Council	
NNPIT	Nigerian National Policy for Information Technology	
NGO	Non-governmental organisations	
PK	Pedagogical Knowledge	
PE	Performance expectancy	
PLN	Personal learning networks	
R&D	Research and development	
STI	Science, Technology and Innovation	
SI	Social influence	
SPSS	Statistical package for the social sciences	
TCK	Technological Content Knowledge	
TK	Technological Knowledge	
TPACK	Technological Pedagogical Content Knowledge	
TPK	Technological Pedagogical Knowledge	

UTAUT	Unified theory of acceptance and use of technology	
UNDP	United Nations Development Programme	
UNESCO	United Nations Educational, Scientific and Cultural Organization	
UKZN	University of KwaZulu-Natal	
WAEC	West African Examinations Council	

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CHAPTER ONE:
CONTEXTUALISING TECHNOLOGY INTEGRATION IN BUSINESS EDUCATION TEACHING AND LEARNING

1.1   INTRODUCTION

This chapter outlines the background of the study. A detailed description of statement of research problem, purpose of the study, significance and the rationale of the study, objectives and key research questions is presented. The chapter goes on to provide a brief description of the development of Business Education in secondary education in Nigeria, and as well as the context of Nigerian secondary school. The chapter concludes with a description of the chapters to follow. Studies have indicated that integration of technology in teaching and learning is an effective way for increasing educational opportunities (Khoza & Mpungose, 2018; Anyanwu, 2014; Mumtaz, 2000; Nyambane & Nzuki, 2014). The integration of technology in teaching and learning has become important and effective, even in the workplace and in people's everyday life (Buabeng-Andoh, 2012). The use of technology can reinforce the importance of education and collaboration between societies, only if it is well used. The proper use of technology in any educational context would raise the quality of education and make teaching and learning more relevant to learner's life situations, and can help learners to understand even the so-called difficult concepts (Nyambane & Nzuki, 2014; Zaman, et al., 2011; Alazam, et al., 2013). More importantly, integration of technology in any teaching and learning context can support pedagogy, curricular and assessment reforms (Kozma, 2005), and technology is an essential tool to support new approaches to teaching and learning (Gumedze, 2017). The aim of the study is to investigate technology integration in Business Education in Nigerian secondary schools.

1.2   BACKGROUND INFORMATION

The study was based on Business Education in secondary schools. In general, secondary schools in Nigeria consist of both the junior and senior school levels. This means that the schools involved in the study are schools that offer Business Education subjects. Most of the

schools offer a number of Business Education subjects and teachers teaching Business Education in these schools are qualified to teach at both junior secondary and senior school levels. Secondary schools were scattered in all regions of the country, in the urban, semi-urban and rural communities. Although, not all the schools were willing to be part of the study, others were more than willing to participate in the study.

1.3   THE DEVELOPMENT OF BUSINESS EDUCATION IN THE NIGERIAN SECONDARY EDUCATION SYSTEM

The national curriculum conference of 1973 which gave rise to the introduction of National Policy on Education in 1977 and subsequent publications of 1983, 1998 and 2004 brought about many changes as regards education in Nigeria (NPE, 2004). These changes brought to light the crucial need for the introduction of Business Education programs in the Nigerian education system (Njoku, 2006). The introduction of Business Education programs was a result of the country's educational goals which were clearly set out in terms of their relevance to the needs of the individual and those of the society in agreement with the realities of the Nigerian economy and the modern world (NPE, 1977).

In addition, the overall philosophy of the Nigerian education is that education is an instrument for national development; the formulation of ideas, integration for national development, and the interaction of persons and ideas (NPE, 2004). On the other hand, for this philosophy to be in harmony with Nigeria's national goals, education has to be geared towards "self-realization, better human relationship, individual and national efficiency, effective citizenship, national consciousness, national unity, as well as towards social, cultural, economic, political, scientific and technological progress" (Nigeria, 1981; 2004, p. 23). Besides, Uvalić-Trumbić and Daniel (2016), Boyi (2014) and Ejikeme (2014) agreed that education is the basic instrument of economic growth and development for any nation, and as well as for technological advancement. Based on this recognition of education, the government of Nigeria, in collaboration with the federal ministry of education in Nigeria, commits immense resources to properly ensure the provision of education for the citizens.

Business Education as a discipline in secondary education is an integral part of the Nigerian education system and has the potential to provide citizens with useful business orientation and knowledge for personal and national development (Okoro, 2014; Nwaigburu & Eneogwe, 2013). In the curriculum of study, Business Education represents a broad and diverse discipline that is included in all types of educational delivery systems in the secondary education system

in Nigeria. Business Education includes education for office occupation, Accounting, Business teaching/studies, Economics, Commerce, typewriting, Stenography and secretarial education or studies (Alabi, 2014; Nwaigburu & Eneogwe, 2013; Nigeria Education Research and Development Council, NERDC, 2011). Education in the discipline of Business Education takes place at two different stages in secondary education, starting from the junior secondary education to senior secondary (JSS 1- SS 3) (Alabi, 2014; NERDC, 2011). In the junior secondary school, Business Education subjects consist of business studies, commerce, office practice, bookkeeping and accounting, shorthand, and typewriting (Alabi, 2014, NERDC, 2011). In the senior secondary school, they are treated as single subjects where the learners are allowed to choose the subjects they feel they can do. The subjects are economics, commerce, bookkeeping and accounting, shorthand and typewriting (Alabi, 2014; Nwaigburu & Eneogwe, 2013; NERDC, 2011).

1.4   STATEMENT OF THE RESEARCH PROBLEM

The teaching of Business Education in Nigerian secondary schools entails teaching learners the essentials, rudiments, assumptions and methods of business. The objectives of teaching Business Education in secondary schools as outlined in the Business Education curriculum for secondary schools include:

- That the learner may, after completing the junior secondary school, have an opportunity for a job in a business organisation or/an apprenticeship in industry (NERDC, 2011; ministry of education, 2004);
- That the learner may go through to colleges, polytechnics or universities. Another objective of teaching Business Education in secondary schools is to offer prospective secondary school graduates an opportunity to develop those skills, abilities, and understanding that will enable them to handle competently their personal business affairs (NERDC, 2011; ministry of education, 2004);
- To provide them with occupational intelligence to enable them to get job satisfaction in the labour force of the economy;
- To train business-oriented learners who can be self-reliant in the future; and
- To produce skilful graduates in Business Education (Alabi, 2014; NERDC, 2011).

Therefore, the fundamental philosophy of Business Education programme in Nigeria secondary school education is geared towards equipping its recipients with employability skills

and knowledge which would enable them to create or acquire jobs, stay on the jobs, and grow in the jobs (Akaeze, 2014; Ave, 2014).

Yet, it is disappointing to know that numerous secondary school graduates of Business Education employed in various areas in the Nigerian economy seem to lack the requisite skills and knowledge to perform their duties in their various working places. This could be a result of poor exposure or poorly taught skills during their school years, according to Adamu (2015) who conducted a research study which examines problems militating against university education in Nigeria. The study found that among the challenges is that most Nigerian secondary school graduates are finding it difficult to cope as the world is changing as a result of technological and economic advancement and this creates peculiar problems and challenges for Nigerian learners as they see themselves as unsuitable for employment as they lack necessary technological skills to work in a modern-day industry. Numerous challenges have been highlighted by many authors (Akaeze, 2014; Ugwuogo, 2014 & Okoro, 2014) as affecting teaching and learning of Business Education in the Nigerian secondary school education system. For instance, Akpan, Umanah, Umoudo and Ukut (2014) as well as Gidado and Akaeze (2014), and Okoro (2014) have identified that there are both technological and pedagogical challenges with Business Education in Nigeria. Gidado and Akaeze (2014) describe the lack of teaching and learning equipment, such as computer accessories, internet facilities, and other technological resources to assist learners as major problems that face Business Education in Nigerian secondary schools. The authors further explain that the unavailability of such needed materials/resources for teaching and learning of Business Education has led to a lack of interest in and motivation to study Business Education in Nigeria.

Equally, pedagogical challenges have also been identified by Sithole and Lumadi (2012) as another issue in Business Education subjects. Furthermore, Omo-Ojugo and Ohiwerei (2008) reported inadequate supplies of textbooks and workbooks as well as the lack of access of business educators to digital technology and the internet to facilitate their teaching. The use of obsolete technologies is among the impediment to Business Education studies in Nigerian secondary schools. For example, manual typewriters are still largely in use and some available modern technologies are grossly inadequate (Ugwuogo, 2013). Also, there is an underutilisation of computers, printers, networking and other resources, and this might have resulted from the lack of skills to operate them (Ugwuogo, 2013). Therefore, to ensure that Business Education is able to deal with global, technological and market changes, and to

properly serve as the motor for socioeconomic growth and development, and as well as for the actualisation of Business Education objectives in Nigeria, it is imperative for Business Education teachers to adopt up-to-date interactive and participative teaching methodologies that are not only modern but also internationally competitive (Nawaz & Gomes, 2014). Hence, the researcher deemed it important to investigate technology integration in Business Education in Nigerian secondary schools.

1.5   THE CONTEXT OF NIGERIAN SECONDARY SCHOOL EDUCATION

Education in Nigeria is provided in three different levels that are primary education, secondary education and tertiary education, more commonly referred to as postsecondary education (Ministry of Education [MoE], 2004). However, this research study focuses on secondary school education in Nigeria. Secondary education in Nigeria is divided into three years of junior secondary and three years of senior secondary school (MoE, 2004; Moja, 2000). The education that is offered at this level has different philosophies or what can be described as two purposes. The one purpose is to prepare pupils to exit school with the necessary skills that will prepare them to find employment, and the other is to prepare them to continue with academic careers in higher education (Moja, 2000; Ekpenyong, 1997).

After completion of junior secondary education, the learners are channelled through placements into specific programmes. The options are "senior secondary schools, technical colleges, vocational training centres, or apprenticeship schemes" (Moja, 2000, p. 17). The placement of learners into different streams is determined by the results obtained from the continuous assessment processes and tests that are supposed to determine academic ability, aptitude and vocational interest (Moja, 2000; Ekpenyong, 1997). After completing senior secondary education the options are to look at employment opportunities in business organisations, apprenticeships or continue with academic careers in higher education (Moja, 2000; Ekpenyong, 1997).

Although secondary education in Nigeria is being vigorously examined today, there is much criticism and this has been strident during the past decade. Some of the critics of the Nigerian secondary education system have concluded that the secondary education system is failing in its duty to prepare the learners for 21st-century working conditions. Some have concluded that there is no hope whatever for secondary education and have called for comprehensive reform (Ezekwesili, 2006). The critics pointed out that there is a lack of needed resources and materials to properly deliver teaching and learning in this stage of education. They argued that there is a

lack of proper equipment and laboratories; lack of teacher-student relationship; there is no technological equipment, like a standard computer laboratory, teaching aids like a projector, as well as equipped libraries (Sobowale, 2013; Ezekwesili, 2006) to train the youths to adapt into the working conditions in the 21st century. According to Sobowale (2013), secondary school education in Nigeria today appears to have lost the focus it ought to be pursuing. The author argued that some of the glaring challenges of secondary education today included poor infrastructures, inadequate teaching facilities such as technological materials, as well as inadequate classrooms.

1.6   RATIONALE FOR THE STUDY

Firstly, the decision to choose this area of research stems from my extensive analysis on the Nigerian education system and on performance of learners in Business Education subjects both at secondary and higher education levels. An extensive body of literature on teaching and learning of Business Education in Nigeria (Ajisafe et al., 2015; Njoku, 2015; Okoro, 2014, Gidado & Akaeze, 2014; Effiong, 2005; Kiboss, 2002) has shown that many problems that the delivery of Business Education faced in early years was still prevalent as recent as 2015, especially in secondary school education, and these problems centre around methods of delivering Business Education subjects.

The challenges for and against Business Education have been attributed to poor and inadequate facilities and resources which are not sufficient to expose the learners to various areas of knowledge. For instance, there are inadequate instructional materials to carry out teaching and learning activities on them (Omo-Ojugo & Ohiwerei, 2008; Effiong, 2005). There are other cases of inadequate resources to teach Business Education subjects in which the primary goal for teaching is to teach learners both practical and theoretical aspects, which are not happening in Nigerian Business Education classes (Gidado & Akaeze, 2014).

According to the National Bureau of Statistics (NBS) (NBS, 2016), the level of unemployed secondary school graduates, especially those who graduated from the discipline of Business Education is at a record high. According to the NBS statistical report of 2016, the unemployment rate of secondary school business graduates in Nigeria averaged 12.31% from 2006 until 2018, reaching an all-time record high of 23.10% in the third quarter of 2018. Similarly, numerous number of business graduates are losing their jobs as they could not keep up with the demands of the world of work due to lack of skills required for work. According to Adamu (2015), this could be a result of poor exposure or ill-equipped technological skills and

knowledge during their secondary school years, as they are finding it difficult to cope in a rapidly changing world as a result of technological and economic advancement.

In addition, there have been reports in many national dailies and other mass media lamenting the high level of unemployed secondary school graduates of Business Education, who lack the required skills to work (Okoro, 2013). Gidado and Akaeze (2014) have identified other factors such as lack of adequate instructional materials, lack of workbooks and lack of other teaching aids.

The second motivating factor that aroused the researcher's interest to choose this topic is observation and experience as a management student for four years and Business Studies teacher for seven years. This experience highlighted lack of resources, mode of delivery and lack of motivation and interest and learners' poor performance both in internal and external examinations. Furthermore, there is a general belief that the quality of education in Nigeria, specifically secondary education is gradually declining, and more especially in Business Education. For the seven years spent as a teacher in my school, the researcher noticed that the above-listed problem seems not to be any problem for both the teachers and the school management. This is because while employed as a teacher, the researcher attended a number of meetings as well as workshops, but there was never a time these issues were brought up for discussion either in the meetings or in the workshops. Even the issue concerning modes or strategies of teaching and learning Business Education were not discussed, but one obvious thing which everyone was concerned about was students' poor academic performance in Business Education subjects.

From experience and observation, the researcher understood that what was happening in the Department of Business Education during my university years was a repeat of what was happening in secondary schools. He therefore concluded that there are truly many challenges facing the delivery of Business Education, without, however, stating that the only problem facing Business Education in Nigeria is the mode of delivery, but rather assuming that it might be part of the problems.

Third, the need for secondary school Business Education in Nigeria is to help learners to become competent graduates and able to adjust to the business world (NPE, 2004). Literature shows that present information and communication technology is changing the way things are being done and even how we communicate, and it has penetrated the world of business as well

(Anyanwu, 2014). Therefore, to catch up with the changes and challenges of modern society brought up by new technologies, Business Education teachers should incorporate technology in their teaching. Therefore, this proposed study is relevant as it may make the readers aware in understanding the level of technology integration and teacher's pedagogy in Business Education subjects in Nigerian secondary school education and necessary steps can be taken to address these challenges.

1.7   THE SIGNIFICANCE OF THE STUDY

Studies by different authors (Gumede, 2017; Anyanwu, 2014; Nyambane & Nzuki, 2014; Kozma, 2005) have indicated that integration of technology into education, especially the use of technology in the teaching and learning activities is one of the effective ways of increasing educational opportunities. Similarly, the use of technology has become essential and effective in the workplace and in everyday life of the people (Buabeng-Andoh, 2012), and has the ability to reinforce the importance of teaching and learning, as well as collaboration between societies, if efficiently and effectively used. Technology integration has the power to raise the quality of education and make it relevant to life situations as well as assist learners to understand even the so-called difficult concepts (Nyambane & Nzuki, 2014; Anyanwu, 2014), and also technology has the potential to support pedagogy, curricular and assessment reforms (Kozma, 2005), and is a vital tool to support new approaches to teaching and learning.

Based on the above statements, the study sought to investigate technology integration in Business Education. This will assist in identifying the knowledge that Business Education teachers have in terms of technological pedagogical and content knowledge (TPACK).

The study is significant in the sense that, as a Business Education educator the study will assist in building strong professional and academic competence for the researcher while giving him an opportunity to advance his knowledge and understanding of theory and practice, as well as to engage and contribute to the debates in pedagogy in secondary education.

By researching technology integration in secondary schools, specifically teaching and learning of Business Education, the study is intended to contribute a new body of knowledge. It will reveal neglected teaching methods and tools in Business Education. It will also recommend a model that uses technology that could be used to improve teaching and learning of Business Education in secondary schools in Nigeria. This study could be of benefit to professional teachers, curriculum developers and educational leaders.

Based on the above, it is hoped that the study will address the gap on how teachers and learners should integrate technology in Business Education in particular. This study will also offer insights into how big and small schools maximise their resources through the use of technology.

1.8   PURPOSE OF THE STUDY

The purpose of the study is to investigate technology integration in Business Education in secondary schools in Nigeria; what technology is being used in Business Education, how teachers integrate technology in the class, and what informs them to integrate or not to integrate technology in Business Education classes. The study attempts to identify knowledge that Business Education teachers possess in terms of TPACK, which is one of the theoretical frameworks in the study. It also investigates the way technology is been used in the teaching and learning of Business Education in secondary schools, and the contextual factors impact on the use of technology in schools is of vital importance.

1.9   OBJECTIVES OF THE STUDY

- To investigate technology integration in the teaching and learning of Business Education in secondary schools in Nigeria;
- To outline what challenges are being encountered with technology integration in the teaching and learning of Business Education;
- To explore what factors motivate the teachers in the use of technology in the study of Business Education in secondary schools in Nigeria;
- To identify knowledge that Business Education teachers possess in terms of TPACK; and
- To recommend a model that could be used to improve teaching and learning of Business Education in secondary schools in Nigeria.

1.10   KEY RESEARCH QUESTIONS

This study focuses on exploring the following questions:

1. What technologies are being used in Business Education teaching and learning in Nigerian secondary schools?
2. What challenges are being encountered with technology integration in the teaching and learning of Business Education?
3. What factors motivate teachers in the use of technology in the teaching and learning of Business Education in secondary schools in Nigeria?

4. What knowledge do teachers of Business Education have in terms of TPACK in teaching and learning of Business Education?

5. How can TPACK be used to minimise the challenges and difficulties in the teaching and learning of Business Education in Nigerian secondary schools?

1.11   THE STRUCTURE OF THE STUDY

Chapter 1: The chapter presents the introduction and background information about the study. The main concepts of technology integration in Business Education, the context of Nigerian secondary school education are discussed. In addition, the rationale, as well as the research questions and objectives are discussed.

Chapter 2: Literature Review: The chapter presents the literature review related to technology integration, Business Education, background information to the research regarding identified factors responsible for technology use in teaching and learning.

Chapter 3: Conceptual Frameworks/models: The chapter presents three theoretical frameworks and/or models related to technology integration. The chapter discusses the models relevant to the study and also identifies one model on which the study is constructed.

Chapter 4: Research Design and methodology: Research design is presented together with the methodologies and techniques that were used during data generation and analysis of data; description and justification of the sample population, justification of the data collection instrument are specified.

Chapter 5: Quantitative Data Analysis: Generated quantitative data is presented according to the sections of the data collection instrument. Information analysed is tabulated and discussed in relation to the different variables or factors on which data were collected. Descriptive statistics are used to analyse the data.

Chapter 6 and 7: Qualitative Data Analysis: Qualitative data is presented according to the themes that emerged from the participants' responses in relation to the questions. The presentation of the qualitative data and the analysis was intended to provide detailed explanation of the results from the quantitative data analysed in Chapter 5.

Chapter 8: Discussion of Results: The research questions are answered according to the relevant parts of the quantitative and qualitative data generated and analysed in Chapters 5, 6

and 7 respectively. The effects and influence of the identified factors in integration of technology in Business Education are discussed with the view to drawing conclusions from the data analysed. Also, a model for effective integration of technology in Business Education is suggested and discussed, based on the descriptive analysis results presented in Chapter 5.

Chapter 9: Conclusion and Recommendations: The research concludes with possible recommendations based on the findings. The chapter identifies the limitations of the study and recommends possible future research areas relevant to the study.

CHAPTER TWO:
TECHNOLOGY INTEGRATION IN BUSINESS EDUCATION

2.1   INTRODUCTION

In the previous chapter, the background to the study and an overview of the research problem were provided. In this chapter, a literature review is offered in order to provide a theoretical basis for the research, as well as a summary of empirical studies related to aspects of integration of technology in teaching and learning of Business Education in secondary schools. The chapter starts with a brief discussion on conceptualisations of terms such as technology and Business Education. Examination continues of the extent of technology integration in the teaching and learning in secondary schools and barriers that are faced in integrating technology in teaching and learning of Business Education subjects, and technology policy in Nigeria. The chapter also looks at differing definitions of Business Education and the importance of Business Education as a field of study in Nigeria. Lastly it discusses the diffusion of innovation theory.

2.2   CONCEPTUALISING TECHNOLOGY

To address the investigation of technology integration in teaching and learning of Business Education in Nigerian secondary schools, it is important to have a clear understanding of multi-dimensional conceptualisations or various understandings of technology, the increased attention to technology integration in teaching and learning, and as well as to have proper understanding of the role of technology in the teaching and learning of Business Education.

Technology has been changing the way people live since humankind began to distinguish between themselves and other animals (Australian Academy of Technological Sciences and Engineering, [ATSE}, 2013). Also, technology may be looked at as the outcome of creative thinking; or about applying knowledge to solve everyday problems and to make the most of opportunities as they arise (ATSE, 2013). Some have referred to technology as a computer, while to others technology is machines and gadgets; both ideas can be regarded as layman's views about what technology really is (Grübler, 2003; Chan, 2002). Technology is considered as a way of thinking; it refers to how humans think about something in so far as finding proper and lasting solutions to a problem (ATSE, 2013). Similarly, technology in any educational setting is referred to as human thought processes in improving the quality of teaching and

learning. Therefore, in the context of this present study, technology means a look at alternatives or innovative ways of introducing strategies to improve the quality of teaching and learning in educational settings.

To improve teaching and learning in secondary education, many studies are now focusing on technology and secondary education teaching and learning. Many scholars have views on the role of information and communication technology in teaching and learning activities and have offered differing understandings or definitions to help us to properly comprehend what technology is all about. For instance, Bamdele (2006) believes that technology encompasses a range of technologies as well as their application, which includes all the aspects of the use of computers, microelectronic devices, and satellite and communication technology. While the national policy for information technology (2001) states that technology is any equipment or interconnected system equipment that is used in the automatic acquisition, storage, manipulation, management, control, display, switching and transmission of information.

Aduke (2008) describes technology as tools that comprise electronic devices which are utilised for information and communication needs of the institution, organisation, students and individuals. The term "technology" includes any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission or reception of data or information (Nigerian Federal Ministry of Education, 2014). Technology refers to people's thinking about things to find proper and lasting solutions to a particular problem. Technology in any educational setting refers to human thought processes in improving the quality of teaching and learning (Bijker, 2009). In education, the above discussions imply that technology is a look at alternative or innovative ways of introducing strategies to improve the quality of teaching and learning. From the above discussion, one can conclude that technology is pervasive, touching almost every part of our lives, our communities and our homes.

Education technologist like Percival and Ellington (1988), Seels and Richey (1994) and Branch (2004) believe that understanding of technology is context-bound. This means that the context in which you find yourself will dictate how you define technology. Thus, a teacher in a school situated in a deep rural village and another teacher who is teaching in a city will have different understanding of technology based on the availability of technology in that particular context and also based on his or her access to technology. In the context of the Nigerian educational landscape, technology, which is mostly referred to as ICT, is in high demand and desperately

needed in all levels of education. Percival and Ellington (1988) state that education technology is made up of two components which are as follows:

- Technology in education (hardware and software); and
- The technology of education (teaching strategy and teaching approaches/methods).

This study will, therefore, explain the differences between technology in education (hardware and software) and technology of education (teaching strategy and teaching approaches/methods). The concept of educational technology is a multifaceted concept and has led to viewing it in terms of some specific types of approaches. On analysing the concept of educational technology, Lumsdaine in 1964 identified and classified educational technology in three distinct types or approaches (Lumsdaine, 1964). The approaches are as follows: educational technology I, or hardware approach, educational technology II, or software approach; educational technology III, or systems approach.

Educational technology I and II or hardware approach and software approach is referred to as technology in education (Parankimalil, 2015). Technology in education refers to the use of technological hardware and software in education. The hardware aspect of educational technology refers to the machine aspect of educational technology which includes among others tape recorders, computers and overhead projectors (OHPs). This is based on the application of engineering principles for developing electro-mechanical equipment like motion pictures, teaching machines, video-tapes and television and is based on the concept of service that is, using technology in education (Silverman, 1968). The hardware approach uses technological devices in the process of teaching so that teachers can deal with more students in classrooms with less expenditure (Parankimalil, 2015; Silverman, 1968). For instance, teachers teaching in a large classroom use a microphone for making their voices audible; such teachers may be said to approach such type of educational technology (microphone-hardware) for making their teaching effective. In this sense, audio-visual aids like charts, models, slides, film-strips, audio cassettes and sophisticated equipment and gadgets like radio, television, films, projectors, tape recorders, record-players, videos, and computers, all may mean to user the technological advancement in the world of communication for educational purposes, especially to provide effective teaching (Parankimalil, 2015).

Additionally, Parankimalil (2015) argued that human knowledge has three aspects – preservation, transmission and development. The physical preservation of human knowledge

has existed since the invention of writing. It has been revolutionised twice – first by the invention of the printing press, and then by computers in the 20th century. Knowledge is preserved with machines in the form of books, tape recorders and films. The second aspect of human knowledge is its transmission. In this case, teachers can impart knowledge themselves to their pupils, but presently transmission of knowledge is supported by a machine like a microphone, radio and television. Through these means, thousands of pupils enjoy delivery of such benefits. Similarly, another aspect of human knowledge is its development. For instance, provisions are made for research work and research programmes; and the main function is the collection and analysis of data. Again, Parankimalil (2015) uses electronic machines and computers to develop and to produce their work. Therefore, all three aspects of human knowledge allow for the use of machines. One may conclude that the present teaching and learning process has been mechanised. The mechanisation of the teaching process and learning is termed as the hardware approach (Parankimalil, 2015).

The software aspect of educational technology originated from the theories of learning. This type of technology tries to adopt a process-oriented technique to produce suitable teaching and learning material, teaching and learning strategies, evaluation techniques, for optimum results in the process of teaching and learning. Consequently, in this type and approach educational technology is basically the technique of developing and utilising software and that is why it is referred to as the software approach. For instance, audio, video cassettes, microfilm, slides newspapers, books, magazines, programmed learning, micro-teaching, team teaching and other educational games, may also form part of the software. In this case, the software approach of educational technology is characterised by task-analysis, selection of appropriate and effective teaching and learning, and immediate reinforcement of responses and constant evaluation (Lumsdaine, 1964). On the other hand, the system approach or technology of education is about the use of TK to formulate teaching strategies and teaching approaches, methods, procedures, ideas, devices, and organisation for analysing problems, and devising, implementing evaluating to teach effectively (Anyanwu, 2014). focuses first upon the learner and then course content, learning experiences and effective media and instructional strategies. Such a system incorporates within itself the capability of providing continuous self-correction and improvement. It is concerned with all elements of instruction including media, including hardware and software (Parankimalil, 2015). From the discussion above, it implies that technology in education (Hardware and software) and technology of education (teaching strategy and teaching approaches/methods) both are inter-linked and work for hand in hand to

maximise the effects of teaching and learning process. Therefore, it is important to state that in the context of this study the term technology refers to the two components of technology, that is technology in education (hardware and software), and technology of education (teaching strategy and teaching approaches/methods) and the word "technology" will be used to mean both concepts. In addition, the terms "technology" and "ICT" mean the same thing and will be used interchangeably in this present study.

2.3 THE NEED FOR TECHNOLOGY IN THE CLASSROOM

Despite the understanding of technology as a view of alternative or innovative ways of introducing strategies to improve the quality of teaching and learning, some schools are far behind when it comes to integration of technology into classroom learning. Many schools are just starting to explore the use of technology and the potential that it has to offer for teaching and learning. Dias (1999) recommended that if the integration of technology in schools were properly used, it would help the learners acquire the skills they need to survive in a complex, highly technological knowledge-based economy. Thus, technologies are integrated in classroom teaching and learning for enhancing the quality of teaching and learning in that particular classroom (Aduke, 2008; Dias, 1999). Therefore, a Business Education teacher who has not been properly trained and equipped in the use of new technologies cannot be effective, efficient or able to deliver the particular knowledge and skills that learners required to succeed in a new work environment that is increasingly technologically based. It is as a result of the importance of TK and skills needed in every society that the Federal Government of Nigeria (FRN, 2004) came up with some policy innovations and changes, one of which was the introduction of ICT into the school system. Therefore, in the context of Nigerian educational landscape, a technology which is mostly information and communication technology, is in high demand and desperately needed in all levels of education. Thus, a teacher in a school situated in a deep rural village and another teacher who is teaching in a city may have different understandings and meanings of technology. This supposed difference in perceptions is based on the availability of technology in that context and also on his or her access to technology (Cele, 2009).

In other studies of more general research into ICT in teaching and learning, for example, (Higgins, 2010, in the USA; Alves, Almeida, Delicado & Carvalho, 2010, in Australia; Department of Education in South Africa, 2012), the authors noted that there are numerous benefits derived from using ICT in teaching and learning. Such benefits which include the

promotion of students' participation, motivation, self-confidence, collaboration, and it makes teaching and learning flexible. Similarly, technology in teaching and learning has been capable of speeding up the method of transferring information which allows for rapid exchanges and delivery of assessment feedback (Anyanwu, 2014; Higgins, 2010; Warschauer, 1995). Higgins, (2010) and Anyanwu, (2014) imply that the presence of technology in the classroom teaching and learning allows for a large amount of information that would be very difficult to communicate through different means.

Despite the difficulties in researching issues around ICT in teaching and learning, data from quantitative studies have provided some indications of its extent. A quantitative study by Tondeur, Van Keer, van Braak, and Valcke, (2008) in Belgium explored ICT use from a school improvement approach. The study particularly examined the local school policy with respect to ICT from both the principal's perspective and perceptions of teachers. The study examines further the relationship between school policies and the actual use of ICT in the classroom. A representative sample of 53 primary school principals was interviewed. The interview data were supplemented with survey data of 574 teachers from the same 53 schools. The study found that school-related policies, such as an ICT plan, ICT support and ICT training have a significant effect on the class use of ICT. In addition, the findings review that school policies are often underdeveloped and underutilised. Also, studies from different countries have shown that using ICTs in teaching and learning activities; enable students to see teaching and learning as being flexible (Drigas & Charami, 2014; Holt, Oliver, McAvinia, 2002; Yun Yua & Yub 2002; Whitely & Smith, 1999).

A study by Drigas and Charami (2014) in Greece reviewed past and recent studies on English language teaching and the use of ICTs. The study found that the use of ICTs in the language classroom has a lot to offer to both learners and teachers, with learners enhancing their vocabulary, improving their reading and speaking skills, and with teachers having to hold a double role; the role of the educator and that of the facilitator, while having to cope with complex situations which include lack of training or lack of equipment in the language classroom. Similarly, a study by Whiteley and Smith (1999) which focused on the use of technology for teaching purposes within two courses forming part of a psychology degree, the purpose of the study was to compare course delivery via ICT with delivery via 'traditional' lectures. The courses were designed mainly for first-year 'Psychology and IT' students. The course was taught entirely by using technology equipment and a second-year 'Cognitive

Psychology' course, parts of which were taught by ICT and part by lectures, some of which were supported by different technologies. The study revealed that the module that was delivered through ICT was felt to have been successful, as was confirmed by generally positive student feedback. The implication is that ICTs in teaching and learning are believed to have a greater impact and could be the answer to alleviating some of the problems encountered in the teaching and learning of Business Education in secondary education.

Scholars like Gokhe (2012), Wang and Woo (2007); Chan (2002), Yusuf (2005) agree that the concept of information and communication technology is broad. Wang and Woo (2007) argued that the concept of ICT varies from place to place and understanding of ICT depends upon the availability and collection of tools and devices (publishing, course delivery, transaction processing) used for particular tasks. Similarly, Yusuf (2005) maintained that the proper way to think about and understand the concept of ICT is to take cognisance of all the uses of digital technology that are available and accessible to help individuals, businesses and organisations use information. In addition, Gokhe, (2012) added that the concept of ICT is broad because of its numerous combinations of informatics technology, and with other related technologies, specifically communication technology.

The concept of ICT and the ICT competency of participants in this study are central to the participation and engagement of teachers and students in the teaching and learning of Business Education. That is to state that within the context of this present study the idea of ICT in the classroom is to make the teaching and learning of Business Education easier, more efficient and effective (Gokhe, 2012). This is with the assumption that when teaching activities do not enhance proper effective interaction between the teacher and the students and among the students themselves, then reinforcement and motivation of knowledge which are considered important suffers, and students become passive learners (ATSE, 2013).

In Nigeria, the Ministry of Education in 2013 stated that proper understanding of the concepts of ICT is something that needs to deepen and broaden our knowledge, skills, and understanding (The Federal Republic of Nigeria, 2011). The Ministry of Education in Nigeria makes the assumption that ICTs in teaching and learning classrooms may trigger development, and broaden students' understanding of the importance of ICT. The constant and increasing use of technology in different sectors of the economy makes confident, creative and productive use of ICT an essential skill for life (Delicado & Carvalho, 2010). This implies that constant use of technologies in everyday human activities may assist human society achieve greater

productivity. Consequently, the implication is that ICT includes any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. For example, personal computers, digital television, email, and robots (The Nigerian Ministry of Education, 2013). Hence, it is with this evidence that this present study assumes that technology integration should embrace not only the mastery of technical skills and techniques but also includes proper understanding of how technology use assists in solving everyday teaching and learning challenges and to apply these skills purposefully, safely and responsibly in teaching and learning of Business Education.

2.4   A BRIEF HISTORY OF THE NIGERIAN POLICY ON TECHNOLOGY

Presently, the global economic landscape is experiencing rapid changes. Globalisation especially is creating considerable new opportunities and new challenges in education sectors worldwide. The impact of globalisation on education sectors is driven by significant progress in technologies. It is therefore obvious that if Nigeria, given its natural endowments, is to successfully transform its economy and take her rightful place in the comity of nations, technology and its integration in national socioeconomic development processes must be accorded the highest priority (The Federal Republic of Nigeria, 2012).

Various Nigerian government administrations since independence have shown considerable interest and increasing appreciation of the role of technology in national socioeconomic development. The realisation of this fact motivated the Federal Government of Nigeria to re-establish the Federal Ministry of Science and Technology (FMST) as a separate entity in 1985. Also, since 1985, Nigeria has channelled resources and efforts into science and technology policy development through a combination of the indefatigable efforts of its scientists, engineers and technologists, international cooperation and government support (FRN, 2012).

The first Policy on Science and Technology in the country was produced in 1986. The policy was designed to create harmony in the pursuit of knowledge about the environment through research and development (R&D). The aim was to use science and technology knowledge to ensure a better quality of life for the people. The policy was reviewed in 1997 to lay more emphasis on coordination and management of science and technology systems, sectoral developments, collaboration and funding (FRN, 2012). In 2003, the Policy on Science and Technology underwent yet another review to take account of lapses observed in the implementation of the 1997 policy, especially on the need to address the institutional frameworks that should foster interaction among the various elements of the National System

of Innovation (NSI). The review also incorporated a programmatic approach to policy formulation. It emphasised the need for a coherent, systematic and comprehensive approach to the determination of technological programmes. The policy gave prominence to flagship programmes of government of the day such as Biotechnology, ICT, Space Science & Technology, Energy and Engineering Materials. However, the 2003 policy document is now seen as a compendium of key science and technology sub-sectoral policies, and is rather voluminous. Furthermore, it did not adequately attend to the issue of science and technology culture and the harmonisation of science and technology policy with other socioeconomic policies (FRN, 2012)

In 2005, the need to carry out a system-wide reform was consummated and implemented under the pre-Nigeria/UNESCO Science, Technology and Innovation (STI) reform initiative. It adopted the National Innovation System approach as a framework for STI system reform. The reform, among other issues, stressed that economic development initiatives, institutional governance, R&D agenda for the country, funding mechanisms, Intellectual Property (IP) and STI Infrastructure development be addressed in any revised STI policy. Thus, the need to design a new policy that will address these challenges becomes indispensable. The new STI policy, taking advantage of the experiences in the design and implementation of science and technology policy in the last two decades and a half, is a product of a novel, all-inclusive, participatory policy-making; involving consultative meetings with various stakeholders across the length and breadth of the country as well as International Development Partners. The participatory approach to the design of policy has heightened awareness and provided opportunities for various actors to articulate their views and make inputs into the new policy (FRN, 2012).

The approach has also promoted collective ownership of the policy by all stakeholders. One notable feature of this policy is the emphasis on 'innovation', which has become a global tool for fast-tracking sustainable development. This policy is a clear demonstration of the country's renewed commitment to ensure that R&D engagements enhance new business development, encourage employment generation, wealth creation through the creation and growth of SMEs that are ultimately translated into goods and services in the market place (FRN, 2012). The national policy vision statement is that by 2020, Nigeria will have a large, strong, diversified, sustainable and competitive economy that effectively harnesses the talents and energies of its people and responsibly exploits its natural endowments to guarantee a high standard of living

and quality of life to its citizens (FRN, 2012). The policy mission is to develop a nation that harnesses, develops and utilises STI to build a large, strong, diversified, sustainable and competitive economy that guarantees a high standard of living and quality of life to its citizens. (FRN, 2012).

In Nigeria, the general objective of the government is to integrate IT into the mainstream of education and training. With the strategy of restructuring the education system at all levels to respond effectively to the challenges and imagined impact of the information age and, the allocation of a special IT development fund to education at all levels

Also, the general policy objective is to build a strong, technology and innovation capability needed to evolve a modern economy based on the following specific objectives:

- Support the establishment and strengthening of organisations, institutions and structures for effective coordination and management of STI activities within a virile National Innovation System.
- Ensure that ICT resources are readily available to promote efficient national development.
- Encourage and promote the creation of innovative enterprises utilising Nigeria's indigenous knowledge and technology to produce marketable goods and services.
- Support mechanisms to harness, promote, commercialise and diffuse locally developed technologies to produce globally competitive goods and service that intensively utilises Nigeria's raw materials.
- Facilitate and support the creation and maintenance of an up-to-date, reliable and accessible database on Nigeria's STI resources and activities.
- Encourage local production and manufacture of ICT components in a competitive manner.
- Empower the youth with ICT skills and prepare them for global competitiveness.
- Initiate, support and strengthen strategic bilateral and multilateral cooperation in scientific, technological and innovation activities across all sectors of the economy (The Federal Republic of Nigeria, 2011, p. 2). Therefore, the next section will look at technology and its integration in teaching and learning.

However, a growing body of work (Yusuf, 2005; Ibara, 2014) advocates for holistic policy considerations and strategies that reflect critical elements that promote technology integration in the Nigerian education system. A study by Yusuf, (2005) presented an analysis of the Nigerian National Policy for Information Technology (NNPIT). The study found that the

NNPIT is inadequate to impact positively on the Nigerian education at all levels. The study also found that the philosophical frame of reference on the Nigerian National Policy for Information Technology is market driven. The study concludes that the policy places little emphasis on the integration and infusion of ICT in the country's education system. A similar study by Ibara (2014), which examines the Nigerian information technology policy. The study contends that the policy appears not to have sufficiently emphasised the integration of ICT in the nation's education system. The study argues that the policy ignores critical elements of quality ICT application in education in Nigeria such as the need for integration into curricular and pedagogical structures, and as well as the need for quality professional development programs for teachers and the development of local content software. The studies by Yusuf (2005) and Ibara (2014) imply that the Nigerian National policy on IT lacks proper clarity and emphasis on technology integration in teaching and learning at all level of education in Nigeria. This is a big challenge to the country's education system in this century, as it has been highlighted that strong and reliable policy is key to technology integration (Tondeur et al., 2008).

2.5   BUSINESS EDUCATION AS A FIELD OF STUDY

Education in this field occurs at several levels, including secondary education and higher education (America, 2014; Yeomans, 1998). Business Education differs from one country to another and sometimes from one author to another, just as the gospels of St. Matthew, Mark, Luke and John. However, the differences were not significant.

Business Education is taught as an academic subject at secondary school level in many countries including Nigeria, South Africa, UK, and New Zealand (America, 2014; Jordan & Yeomans, 1998; New Zealand Ministry of Education, 2009). In South Africa, Business Education is an overarching term which refers to Economic and Management Sciences (EMS) Education – Grades 7 to 9 (senior phase in the school curriculum), and Business Studies, Accounting and Economics – Grades 10 to 12 (Further Education and Training, or FET) phase in the school curriculum.. Similarly, Jordan and Yeomans (1998) stated that Business Education is an academic subject at both secondary education and higher education levels in the UK and Wales. Business Education had its origins in the UK and Wales education in typing, office practice, commerce and economics courses (Jordan & Yeomans, 1998). In New Zealand, business studies are offered in different levels of education; secondary education as well as in the higher education.. Business studies in New Zealand are influenced by and impacts on the

cultural, ethical, environmental, political, and economic conditions of the country (New Zealand Ministry of Education, 2009). Additionally, Business Education in Nigeria is a general term which covers both Accounting, business studies, commerce, typing, office practice and economics. Business Education in the Nigerian education system is offered from the junior secondary school up to the tertiary institutions, (Nigerian National Policy on Education, 2004).

The study of Business Education involves, not the least, teaching students the fundamentals of business, the concepts, as well as the theories and processes of the business. Many scholars (Njoku, 2007; Utoware, Kren-Ikidi & Apreala 2018) in the field have described Business Education in various ways. Utoware, Kren-Ikidi & Apreala (2018) Business Education is a form of education which in addition to offering general education, is designed for vocational preparation in office and business-related occupations. Nedum-Ogbede, (2018) describes Business Education as that area of education which concerns itself with the vocational and professional preparation for a career in business, teaching business subjects as well as providing information important for every citizenry and consumer in order that he or she may better understand and utilise his or her business and economic understanding. In all, Njoku (2007) noted that Business Education is an educational program that equips an individual with functional and saleable skills, knowledge, aptitudes, attitudes and values that would enable him operates in the environment he finds himself. To this end, the principle of Business Education embraces basic education for a teaching career, entrepreneurship, business understanding and information, office environment and vocational practices.

2.5.1 The Importance Of Business Education

Business Education as an indispensable education for economic growth and development in any nation, plays its undisputable part in the achievement of the general aims of education at every level of education in Nigeria. Importantly, Business Education has its main objective in preparing the youth to enter into a career, to render efficient service and to advance from their present level of employment to higher levels which arguably will have a significant effect on the economic development (Utoware, Kren-Ikidi & Apreala 2018).

The basic Business Education knowledge affords every citizen great opportunity to develop their skills, abilities and understanding of the many opportunities available in the broader field of business. Furthermore, Business Education helps individuals to develop their skills and abilities to assume their citizenship responsibilities through giving them proper education to participate in and as well as helping them in understanding and appreciating the business

system (Osuala, 2003). Business Education encompasses a broad area of knowledge that deals with the economy. The study of Business Education deals with the role of business as well as the economic institution, it provides content, experiences and prepares every individual to fully and effectively participate in economic activities and as consumers (Nigerian Ministry of Education, 2015).

Business Education as a field of education in Nigeria provides lifelong education which agrees with the Nigerian educational philosophy. Business Education involves teaching students the fundamentals, theories and processes of the business. Education in this field occurs at several levels in Nigeria, including secondary education and higher education or university education. In Nigeria, approximately 40% of students enrol in one or more business courses during their secondary and higher education (Nigerian Ministry of Education, 2015).

Edomwonyi and Osarumwense (2017); Osuala, (2009) and Njoku (2007) concur that as a field of education, Business Education is concerned with the development of skills and knowledge needed in order to enable an individual to function effectively. An obvious characteristic has been its devotion to offering an education that is relevant to Nigerians and the entire world in which the recipient lives and works. As an educational area, Business Education is a broad area of knowledge which deals with the entire enterprise system which identifies and explains the role of business in a dynamic economy (Nedum-Ogbede, 2018).

). Business Education involves all types of education that enable an individual to know, have skills, understand and modify his or her attitudes to do whatever is needed to be done in business transactions, dealings and situations, whether as a maker or user of goods and services (Njoku, 2007).

 In addition, Business Education as that part of the field of education deals with experiences both for specialised occupational uses and for general uses. It is a related and integral part of a total educational program that deals with relationships, techniques, attitudes, and knowledge necessary for an individual to understand the social institutions of business and successfully adjust to it (Osuala, 1989). Business Education touches all aspects of human endeavour, especially when it has to do with rational production and consumption of goods and services.

Scholars (Oluwafemi, Olu & Epetimehin, 2012; Odunaike & Amoda, 2008; Inegbedion, Njoku & Ekpenyong, 2008) have argued for the importance of Business Education as a field of study in Nigeria education system. For instance, Inegbedion et al., (2008) stated that the importance

of Business Education cut across many aspects of human lives and the economy of every nation. Therefore, the importance of Business Education cannot be neglected by any government that wants to develop and sustain development especially as it affects its businesses and the citizens. However, this statement by Inegbedion et al., (2008) is contrary to the opinion of some people who until presently still believe that Business Education is not as important as other courses, hence should not be given a prominent place in any system because of it perceived the poor image. Moreover, there are two distinct areas of importance that make the field of Business Education to stand out among other learning areas like mathematics, English language and Chemistry.

Firstly, to an individual learner, Business Education as an integral part of vocational and technical education is important to the learner as the study is directed towards developing the learner to become productive in teaching, paid employment and self-employment (Oluwafemi, et al., 2012). Idialu (2007) as well as Amoor and Udoh (2008) noted that the study of Business Education plays a distinguished role in any country, by developing the economy and by providing knowledge and skills to the learners. This is true because through the study of Business Education every individual learner will acquire skills that would enable the learner to engage in any meaningful employment or become an employer of labour (Idialu 2007). Furthermore, with a proper understanding of Business Education that an individual gained from the study of Business Education she/he can make informed decisions as a consumer of goods and services (Inegbedion et al., 2008). Meanwhile, the study of Business Education is important to every individual. This is so because with the knowledge acquired through the study of Business Education, an individual will be in a better position to spend judiciously and live a life devoid of excessive acquisition of wealth, which has led us into social vices such as corruption, sexual abuse as well as inefficiency and waste of the nation's resources (Inegbedion et al., 2008).

Amoor and Udoh (2008) noted that the study of Business Education is important because it inculcates in every individual learner the sense of discipline and patience. Also, Inegbedion et al. (2008) re-echoed the statement that the study of Business Education through courses such as human relations, professional ethics and entrepreneurship provides to every learner a sense of appreciation, discipline and patience that are needed in this 21st century to work effectively with people and accommodate others. In addition, Business Education inculcates in every learner the ability to be able to appreciate the world around them and develop a high sense of

commitment. It is important for people to understand the socio, political and economic frame work of their country. With the knowledge imparted by Business Education individuals can contribute their own quota to the economic development of their country (Inegbedion et al. 2008; Amoor & Udoh, 2008).

Inegbedion et al. (2008) believe that one's knowledge of and competence in Business Education can place one in a position which one can contribute the best effort to economic development programmes such as poverty alleviation programmes as put forward by the Federal Government. Similarly, Amoor and Udoh (2008) maintain that Business Education is very important because it gives every individual who passes through it a new perspective on life, especially about his or her value system. The study of Business Education provides a new focus on environmental management, amicable conflict resolution and to shy away from prostitution, violence, cultism, rape, drugs, (Inegbedion et al., 2008, p. 4). Hence, from the discussions above, it shows that the study of Business Education offers great opportunities to every individual: knowledge, skills, ideas, and insights to successfully operate personal businesses and be able to determine the flow of business continuously, thereby reducing the risk of business failure (Inegbedion et al., 2008).

Secondly, Business Education is important to the nation because more people would have skills that can make them ready employers of labour. This is beneficial to the nation, as many people will not depend on the nation, but rather become job creators. Furthermore, as many individuals develop proper values towards work they tend to contribute more economically to the nation. For instance, the nation is less at risk from violence, sexual immorality, pride, corruption and examination malpractice among others (Inegbedion et al., 2008, p. 3). Correspondingly, as individual citizens become judicious spenders, the country gains by way of investing excess resources on meaningful projects that would lead to economic development. Similarly, Edokpolor and Egbri (2017) stipulated that the actual goals of Business Education are to prepare students for specific career in office occupations; equip students with the requisite skills for job creation and entrepreneurship; and expose students with knowledge about business, including a good blend of computer technology, which incorporates information and communication technology.

Another importance of Business Education is that citizens of the country develop sound moral values then the country will be free from insecurity and peace will reign supreme. More people will invest in the country and there will be increased in growth and development (Amoor &

Udoh, 2008). Therefore, it is of paramount importance to recognise the indispensable contributions Business Education has made. Currently, it is possible for those who want to be retrained to upgrade their skills and have access to education. In this way, people who finish secondary school with no saleable skills will have to acquire skills that make them become functional, through retraining programmes (Amoor & Udoh, 2008; Inegbedion et al., 2008). From the above discussions, one can conclude that the main goal of Business Education globally is primarily to produce competent, skilful and dynamic business teachers, office administrators and businessmen and women that will effectively compete in the world of work (Odunaike & Amoda 2008). There are suggestions that Business Education is not just only a school subject but also an important field of study (Ajisafe, Bolarinwa, & Tuke, 2015). Akpan, Umanah, Umoudo, and Ukut, (2014) in the study Business Education: problems and prospects in Nigeria, the study demonstrated clearly the importance of Business Education as an academic subject to any nation. Thus, this study is focused on investigating technology integration in the teaching and learning of Business Education in secondary schools in Nigeria.

2.5.2 Challenges Facing Business Education Teaching And Learning In Nigerian Schools

Studies have shown that there are numerous challenges that have been highlighted by many authors (Akaeze, 2014; Ugwuogo, 2014 & Okoro, 2014) as affecting teaching and learning of Business Education in the Nigerian secondary school education system. For instance, Akpan, Umanah, Umoudo, and Ukut (2014) as well as Gidado and Akaeze (2014), and Okoro (2014) have identified that there are both technological and pedagogical challenges with Business Education in Nigeria. Gidado and Akaeze (2014) describe the lack of teaching and learning equipment, such as computer accessories, internet facilities, and other technological resources to assist learners as major problems that face Business Education in Nigerian secondary schools.

Interactive and participative teaching methodologies are the need of the hour and using them is important, because Business Education learners like most other learners of today are in the category of digital natives who are comfortable with technology and have been using it all through their lives (Otunla, & Adeleke, 2019; Bennett, Maton & Kervin, 2008; Prensky, 2001). Therefore, for education to properly serve as the motor for socioeconomic growth and development, and as well as for the actualisation of Business Education objectives in Nigeria, it is of paramount importance that secondary education and its systems function optimally in

relation to its set standards of teaching and learning of Business Education (Ogundile, Bishop, Okagbue, Ogunniyi, & Olanrewaju, 2019; Akaeze, 2014). The authors stated that the issue of lack of technological teaching aids has generated an on-going argument which many has a link to the reason learners are not doing well as expected in their education.

Olutola and Olatoye, (2015) further stated that in some secondary schools in Nigeria equipment such as computers, projectors, software and internet are not available for proper utilisation. New technologies in teaching and learning posed many challenges to the teaching and learning of Business Education in Nigeria (Achugbue, 2011). Nigerian secondary schools would achieve the goals of teaching and learning Business Education if necessary modern technological teaching aids like computers, electric typewriters, projectors, internet facilities, among others, are adequately provided and used. According to Achugbue (2011), the reason many schools in Nigeria are lacking modern technological teaching aids is that they do not give adequate priority and attention to the acquisition and utilisation of new instructional technologies. As a result, the lack of such necessary facilities makes it difficult to teach and prepare Business Education students for the use of new technologies now and in the future world of work. The non-availability of needed materials/resources for teaching and learning of Business Education has led to a lack of interest and motivation to study Business Education in Nigeria by many (Olutola & Olatoye, 2015).

Equally, pedagogical challenges have also been identified by Sithole and Lumadi (2012) as another issue in Business Education subjects. Furthermore, Omo-Ojugo and Ohiwerei (2008) reported inadequate textbooks, workbooks as well as the inaccessibility of digital technology and the internet to business educators to facilitate their teaching. The use of obsolete technologies is among the impediment of Business Education studies in Nigerian secondary schools. For example, manual typewriters are still largely in use and some available modern technologies are grossly inadequate (Ugwuogo, 2013). Also, there is an underutilisation of computers, printers, other resources, and networking, and this might have resulted from the lack of skills to operate them (Ugwuogo, 2013). Lack of training for the teachers and students to use the equipment has been identified as among the challenges that face Business Education in Nigeria.

According to Olutola and Olatoye (2015), the introduction of new technologies in the education system and the rapid nature of its expansion seem to overwhelm curriculum planners and other stakeholders in Nigerian secondary education. To ensure that Business Education is able to

deal with global, technological and market changes, it is imperative to encourage Business Education teachers to adopt up-to-date interactive and participative teaching methodologies that are not only up-to-date but also internationally competitive (Nawaz & Gomes, 2014). Hence, as an important area of education in Nigerian, the goals of Business Education will be better achieved when combining its teaching and learning with technology. This is essential due to the present demand of today's office work. Therefore, the next section will look at technology policy in Nigeria.

Several studies have investigated the challenges facing the teaching and learning of Business Education. For example, a study by Akpan, Umanah, Umoudo and Ukut (2014) identified some of the problems of Business Education to include poor funding, staffing, lack of facilities, poor remuneration for staff, lack of cooperation from parents, and poor appreciation of the programmes of study by the government. Similarly, Shao, Shao and McKinney, (2013) maintained that Business Education is saddled with numerous problems which make it hard to deliver its goals. The problems include poor curriculum content, poor funding and lack of adequate and experienced manpower. Nino (2010) believes that the curriculum of Business Education lags behind the true scale of the globalisation strategy in their operations and the field faces technological challenges.

Akhere (2002) mentioned that between 1986 to date, many changes had taken place in office structure, content, methods, roles and even personal requirements. Since then till date Business Education as a field of study, both the function, goals, content, methods and standards of business instruction have been under constant scrutiny. In the context of this study, and considering numerous highlighted challenges that faced Business Education, the question is, in the face of the ever-changing social needs of our nation, is the present Business Education curricula relevant in meeting the information technology and globalisation requirements? Hence, Akpan et al. (2014) in a study in Nigeria concluded that there is need to remedy the unfortunate state of Business Education in Nigeria by considering appropriate measures which include the provision of ICT which facilitates and speeds up information gathering and knowledge dissemination worldwide.

2.6   UNDERSTANDING TECHNOLOGY INTEGRATION

Before going into unpacking the meaning or definitions of technology integration, it is important to state that there is no generally agreed definition or explanation of the term "technology integration" (Belland, 2009; Newby, Stepich, Lehman, & Russell, 2006).

Technology integration has been defined in numerous ways by different authors. For instance, Ntuli, and Kyei-Blankson (2013) refer to technology integration to the use of various digital and hardware tools to facilitate the process of teaching and learning in and outside the classroom. Dockstader (1999) believe that technology integration is using computers effectively and efficiently in the general content areas to allow students to learn how to apply computer skills in meaningful ways. Similarly, Kafyulilo (2015) maintains that technology integration is using software supported by the business world for real-world applications, so students learn to use computers flexibly, purposefully and creatively.

Belland, 2009; Newby, Stepich, Lehman, and Russell, (2006) and Ertmer, (2005) believed that technology integration means using technology to make learning more efficient or effective as well as the use of technology to help students solve problems. Also, Redmann and Kotrlik (2008, p. 3) saw technology integration as "making, modification, usage and knowledge of tools, machines, techniques, crafts, systems and methods of organisation to solve a problem, improve a pre-existing solution to a problem, achieve a goal, handle an applied input or output relation or perform a specific function". Technology integration has been regarded as the sustainable and persistent change in the social system of schools caused by the adoption of technology to help students construct knowledge (Gibson, 2001). Additionally, technology integration also has been defined in other ways, for example, technology integration is having the curriculum drive technology usage, not having technology drive the curriculum. Technology integration is organising the goals of curriculum and technology into a coordinated, harmonious whole (Dockstader, 1999). Hence, having identified various definitions of the term technology integration, the next section will discuss why technology should be integrated in teaching and learning.

2.7 THE NEED FOR TECHNOLOGY INTEGRATION IN TEACHING AND LEARNING

Research studies have explored a wide variety of reasons for technology integration in teaching and learning activities. For instance, Dockstader (1999, p. 2) identified a number of reasons for integrating technology in the teaching and learning process.

> *"Technology enables the teacher to correctly designed the lesson to be taught, have more depth into the content-area curriculum; technology is needed in the information age, there is an intrinsic need to learn technology, students are motivated by technology, thus increasing academic engagement time, while working in more depth*

with the content, students are able to move beyond knowledge and comprehension to application and analysis of information, students learn where to find information in an information-rich world, computer skills should not be taught in isolation and students develop computer literacy by applying various computer skills as part of the learning process"(Dockstader, 1999, p. 2)

Similarly, Meyer and Alexandra (2011) reminded us that integrating ICT in teaching and learning makes teaching fast, easy and flexible; that all that is needed is access to a computer and the internet and we are ready to stay connected with our students, both those present and those not present and the electronic community. Studies on the ability of ICT to effect changes on teaching and learning (White & Baker, 200; Mark, 2000) show, however, that in addition to connecting teacher and students; ICT is capable of providing a genuine and conducive learning environment for the students to study from anywhere they might be and at any time. Also, to cover up the gap created by students' shyness in asking questions in class, ICT is capable of coordinating computer-mediated communication between lecturers and students. In addition, other studies located around ICT integration in teaching and learning provide more detailed accounts of the ability to improve teaching and learning in schools. For example, a study by Iron (2008) in New York found that ICT speeds up the provision of messages that are relevant to both the students and lecturers, and it allows one message to be sent to thousands of people all over the world. At the same time, the studies point out that ICT as a means of supporting teaching and learning can lead to an interesting pedagogical change. Basak and Govender (2015), Tondeur et al. (2008), Meyer and Alexandra (2011), and Iron (2008), showed that integrating ICT in the teaching and learning in secondary education institutions can speed up the delivery of information and at the same time facilitate teaching. The implication is that when students are involved in teaching and learning activities, students can search for more information, interact with the outside society and bring more information to the classroom. Namdeo (2005, p. 1) argued that ICT plays an increasingly important role in education. "It affects the continuing developments to education. The various kinds of ICT products such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counselling, interactive voice response system, audiocassettes, and CD ROMs are available and having relevance to education" The author further argued that when ICT is fully integrated in any educational settings it can bring children closer together in academic achievements, concentration in the classroom; and that ICT tools are not for making educators

master ICT skills themselves, but for making educators create a more effective learning environment through ICT (Namdeo, 2005).

The main purpose of integrating new technologies in teaching and learning is to improve the quality of education, and to expand access to education (Madu, Obidi & Odimmege, 2015; Govender & Dhurup, (2014). Teaching and learning in any educational context presently are expected to be technologically driven and require full integration of technological resources. Regrettably, many schools in Nigeria seem to be lacking in the sense that the necessary technological resources needed to bring the education system to a level matching international standards are not available in schools. This situation of lack of necessary technological facilities in Nigerian schools calls for an urgent solution. "Business Education programme being a skills development programme seem to be worst hit by the dearth of requisite technological tools on the one hand and the skills needed to effect the integration on the other" (Madu, Obidi & Odimmege, 2015, p, 2). The next section will be on the need for technology integration in teaching and learning. Furthermore, there is a consensus that technology integration is essential in teaching and learning (Wang, Chung, & Yang, 2014; Gibson, 2001). Studies from various fields of study and from different countries have demonstrated the importance of technology integration.

A study was carried out by Wang, Chung, and Yang, (2014) in China where the purpose was to determine how to integrate technology into mathematics classes using a particular ICT (clickers) in high school settings. The study also aimed to examine its effect on Special Education and English Language Learner student learning outcomes. Forty-seven high school students who were enrolled in Geometry class were selected to participate in this study. The study found that the use of a particular ICT (clickers) had a positive impact as the students gained better test scores. Also, a study by Cemalettin (2006) in Turkey, based on the review of studies on educational technologies and the study of social studies. The findings of the study suggested that the integration of technology into educational environments, specifically in the social studies aligned with constructivist pedagogy and bears the potential to inspire new ways of teaching and learning. Similarly, Gibson (2001) in Australia conducted a literature review which presents a critical review of current research on the role technology integration plays in high school students' literacy achievement. The study found that students' and teachers' attitudes and beliefs about laptop integration are the leading cause of students' literacy achievement. Khoza and Mpungose, (2018) conducted a research on the use of a particular

technology Moodle in teaching and learning. The study found that the use of Moodle promotes both societal, discipline and personal needs in teaching and learning. The study therefore recommends the integration of Moodle in teaching and learning activities. Similarly, technology integration in teaching and learning help to extend student learning opportunities (Mtshali, Maistry & Govender, 2015). The authors believe that integration of technology in teaching and learning enables students to interact with one another via online chats, as it provides means for the students to share ideas about a given topic or discuss their assessment task (Mtshali et al., 2015).

The implication for education policymakers is to take notice of the importance of the role of technology in students learning. ICTs has become more powerful, more accessible and more widespread. Its role in enhancing competitiveness, enabling development, and bringing progress to all levels of education is without a doubt (Cemalettin, 2006). This present study with the understanding that technologies offer unique opportunities for learning through exploration, creative problem solving and self-guided instruction; assume that integration of technology in teaching and learning of Business Education may help alleviate some of the challenges that affect Business Education in Nigeria.

2.7.1 Technology Integration In Teaching And Learning In Secondary Schools In Nigeria

There are few Nigerian research studies on the integration of technology in teaching and learning in secondary school. However, existing research has focused on the attitude of teachers as well as on specific subjects, like Physics, English language study and Home Economics. In a study by Aderonmu and Obafemi (2015) in Nigeria, the study based on Physics instruction in secondary schools, the study highlighted ordeals of Physics instruction in Nigerian secondary schools and the way forward for the attainment of global competitiveness. The research has a descriptive survey design. Ninety-two Physics teachers and eight secondary schools (four in each Local Government Area) were selected using a purposive sampling technique for the study. The study found that Physics teachers were not qualified for proper teaching of Physics, laboratory apparatus was insufficient for effective practical activities in Physics teaching and learning in both rural and urban schools, the lecture and problem-solving methods are the most applied instructional strategy employed during Physics instruction and Physics teachers do not utilise ICT tools in teaching Physics. The study recommends among

other things that appropriate teaching methodologies and ICT tools integration in the teaching and learning of Physics should be employed by Physics teachers during Physics instruction.

Similarly, Gambari and Yusuf, (2017) investigated the relative effectiveness of computer-supported cooperative learning strategies on the performance, attitudes and retention of secondary school students in Physics in Nigeria. A purposive sampling technique was used to select four senior secondary schools from Minna, Nigeria. The study found some significant differences in the performance and attitudes of the groups, through cooperative learning strategies did not improve retention compared to ICI. The findings of the study support the integration of computer-supported cooperative instructional strategies in secondary school classrooms. In addition, Ejinkeonye and Usoroh (2016) conducted a research study which focused on enhancing the utilisation of ICT among Home Economics lecturers in South Eastern Nigeria. The study adopted a survey method, and the population was made up of 63 Home Economics lecturers from the six colleges of education that offer Home Economics in the area of the study. The study did not use any sampling technique and a questionnaire was used for data collection. The study found low utilisation of ICT in lesson preparation and presentation. The study recommended that workshops, conferences, seminars, in-service training and improvement programs should be organised by schools to train lecturers on ICT utilisation, among others. However, this present study differs from Gambari, and Yusuf, (2017); Ejinkeonye and Usoroh (2016); Aderonmu and Obafemi (2015). This study is focused on investigating technology integration in Business Education in Nigerian secondary schools. Also, it uses TPACK to inform teacher pedagogy in secondary schools in Nigeria, and the unified theory of acceptance and use of technology (UTAUT) to understand what determines Business Education teachers to use or not to use technology in their teaching. The next section is focused on technology integration in teaching and learning of Business Education in secondary schools in Nigeria.

2.7.2 Technology Integration In Teaching And Learning Of Business Education In Nigerian Secondary Schools

There are limited studies in Nigeria focusing on technology integration in the teaching and learning of Business Education in secondary schools. The existing research centres on teaching and learning of Business Education in higher education. The present study focused on investigating technology integration in the teaching and learning of Business Education in secondary schools. Mwapwele, Marais, Dlamini and Van Biljon, (2019) as well as Okolocha

and Nwadiani (2015), conducted a research study which assessed the utilisation of ICT resources in teaching among business educators in tertiary institutions in South Nigeria. The study adopted a descriptive survey research design. The population and sample for the study comprised all 240 business educators in colleges of education and universities in South Nigeria. The findings revealed that the few available ICT resources are rarely utilised in the teaching of Business Education. Business educators encounter several problems such as irregular power supply in the utilisation of ICT resources. The study recommended among other things, that government and stakeholders in education should make adequate budgetary allocation for the provision of ICT resources and the identified barriers that stand against effective utilisation of ICT should be tackled and removed to better equip products of tertiary institutions to fit into various workplaces.

Similarly, Funke and Oluwafemi (2019) as well as Ojeaga and Igbinedion, (2012) carried out a research study which examined the potentials and immense benefits of e-learning in education generally and Business Education in particular. The study also investigated the Nigerian policy on ICT as it relates to education. The study presented various methods that may be employed in the delivery of Business Education lessons via e-learning. The study also recommended that there should be awareness creation about the potentials and prospects of e-learning in Nigerian schools among others.

A similar study by Awofala, Olabiyi, Awofala, Arigbabu, Fatade, and Udeani (2019) as well as Umoru, (2012) explored the barriers to the use of ICTs in teaching and learning Business Education. The study used 15 questionnaire items derived from research reports relevant to the study. The questionnaire was validated using Cronbach Alpha which yielded a reliability coefficient of 0.78. A total of 256 questionnaire items were administered to 202 business educators and 54 students of Business Education respectively from universities offering Business Education in Nigeria. The study revealed several barriers to the use of ICTs in teaching and learning Business Education in Nigeria universities, which includes lack of ICT facilities and electricity. The study concluded that the revealed barriers be tackled by the government, the university authorities, the teachers and the students so that the university environment would be repositioned to play its role of empowering the youth with the skills, attitude and competencies needed for Nigeria's development. The implication is that there are emerging voices on the essentiality of technology integration in Business Education. Therefore, investigating technology integration in secondary schools in Nigeria is important.

Madu et al. (2015) argued that the consequence of a lack of technologies in the teaching and learning of Business Education programs of study is the main challenge of producing the needed manpower for the world of work. Hence, for technology to be successfully useful and deliver the goods expected of it such as making secondary school Business Education graduates global workers, it should be made part of the educational delivery of learning. Technology has become an integral part of the instructional process resulting in the development of new concepts in the logistics of instruction. The use of technological equipment and resources has made teaching and learning a little easier, concrete, and real and more result-oriented (Madu, Obidi & Odimmege, 2015). However, since the introduction of technologies into teaching and learning activities in schools, there has been a growing concern for the use of new technologies to teach effectively. Therefore, this makes investigating technology integration in Business Education essential.

Integrating information and communication technology in teaching and learning have the capacity and capability to change the nature of instructional delivery (Iron, 2008), for example, teaching resources developed in electronic copy by best-practising teachers in one country can be made available to other teachers and students all over the world, this practice has increased the export of teaching resources and increasingly available in other developed countries like the USA, Canada, and Britain (Chapman et al., 2004). Information and communication technology have the capacity to affect the quality and efficiency of teaching and learning throughout the world both negatively and positively (Chapman, Garrett, & Mählck, 2004). Teachers and students with the assistance of ICT can gather information over the internet on virtually any subject/topic without any stress, and it has the potential to transform instructional content as well as the pedagogical practices. Chapman et al. (2004) believed that while ICT as a medium of instruction in schools has just begun, as time goes on it will become a dominant trend over the next decade in teaching and learning activities both in higher educations and in secondary schools.

Technology has the potentials to accelerate, enrich and deepen skills; motivate and engage students in learning; Technology has the potentials to help relate school experiences to work practices; Technology has the potentials to help create economic viability for tomorrow's workers; contributes to radical changes in school; Technology has the potentials to provide opportunities for connection between the school and the world (Nigerian federal ministry of education, 2014; Yusuf, 2005). Yusuf, (2005) argued that the pervasiveness of ICT has brought

about rapid technological, social, political and economic transformation. This has eventuated in a network society organised around ICT. Also, it has been argued that in educational settings new ICT facilities allow students and teachers to control, manipulate and contribute information to learning and teaching environments as interactive books, journals and the like are usually made available via the internet (Oxfam Education Report, 2002).

Most importantly, the use of new multimedia technologies and the internet will improve the quality of teaching- and learning-related activities not only in Nigeria but sub-Saharan Africa as well. Technology as a social process has the potential to facilitate interaction and collaboration not only among learners but among teachers as well both at local and/or global levels. It will give vast opportunities to individuals who might wish to combine work and learning to learn at his or her own pace and time, notwithstanding the location. Anyanwu (2014) maintained that the use of ICT facilities enhances the performance of teachers in terms of course materials delivery and provides maximum attention to students as they could meet through email feedback.

In the view of many, the move to advance ICT as an instructional tool in education system offers a great opportunity and hope for increasing access, quality and efficiency of teaching.

According to Chapman et al. (2004) this is inevitable for higher institutions in these 21 centuries because it will equip lecturers to better understand the new trends of teaching students who are technological conversant. Prensky (2001, p. 2) in his work the "digital natives, digital migrant" described the 21-century student as the digital natives who are used to receiving information really fast. The author further stated that the digital natives like to parallel process and multi-task. Also, they prefer their graphics before their text rather than the opposite. They prefer random access (like hypertext). Similarly, the digital natives function best when networked. They thrive on instant gratification and frequent rewards. However, newer ICT-based instructional materials are used more to expand communication and increased access to resources. ICT resources represent a significant change in lecturer's role in the instructional process. Therefore, technologies such as email and the internet tend to push teachers towards fundamentally different ways of teaching/interacting with students in education (Chapman et al., 2004; Prensky, 2001). This implies that teachers teaching the present-day students must be familiar and conversant with ICT instructional materials/tools to improve the delivery of instruction in the classroom.

Other importance of ICT in teaching and learning in education has been recognised. Aduke (2008) admits that teaching in education embraces forms of process, behaviours and activities which in no way succumb to a single theory or explanation. The implication of the above is that ICT is utilised to enhance teaching effectiveness; therefore, it is expected of every classroom teacher to use ICT facilities to inculcate that knowledge that is considered relevant to their students. Therefore, it has been argued that classroom teachers that possess adequate and professional skills in ICT usage will help their students to perform well in classroom teaching and learning (Aduke, 2008).

In addition, Anyanwu (2014) maintained that teaching should facilitate proper effective communication between the teacher and the students; and among the students themselves, if this is not achieved then reinforcement and motivation of knowledge suffers, and students become passive learners. Literature from several fields of education has shown that student's participation, motivation, self-confidence, collaboration in classrooms has increased as a result of technology integration in teaching and learning, and that the integration has made teaching and learning much more flexible (Anyanwu, 2014; Curtis & Lawson, 2001). The integration of technologies in the teaching and learning classrooms has been described by many authors as a high-speed method of transferring information, and it is used to facilitate speedy delivery of instructions (Warschauer, 1997). Also, Hassett, Spuches and Webster (1995) claim that technology in teaching and learning can provide a genuine and conducive learning environment for the students to study. For instance, online collaboration or social media as some authors describe it. While Berk (2009) holds that to cover up the gap created by students' shyness in asking questions in class, technologies like email are available to facilitate and coordinate computer-mediated communication between lecturers and students. Iron (2008) argued that technology is a means of supporting students' learning to enable students to be able to participate actively in the teaching and learning activities. Students can source additional information, interact with the outside society and bring more ideas to the classroom. Studies have shown that students do better in their studies when they participate actively in teaching and learning activities and integrating technologies will enable them to achieve that; when technologies are integrated in the classroom, students see teaching and learning as more flexible (Warschauer, 2004; Holt, Oliver, McAvinia, 2002; Hassett et al., 1995). Furthermore, Rahman (2008) describes the introduction of technology in classroom teaching and learning as one of the important moves to improve communication and participation and capable of enhancing students' motivation in learning.

Also, Cox, Preston and Cox (2000) researched teachers' experiences of technology integration in teaching and learning classrooms. Their findings show that teachers have a positive experience of technology integration in the classrooms. It is further noted that teachers' experiences of technology usage as fun, easier and motivating. Cox et al. (2000) further explain that teachers' positive experiences of the use of technology in classrooms are that it makes teaching more diverse and improves the presentation of materials. This suggests that technology in the classrooms makes lessons presented more interesting and teaching easier as technologies like emailing, computers, projectors, internet search, enable the teachers and students to source materials to enhance teachers teaching strategies and learners learning strategies.

Kosoko-Oyedeko and Tella (2010) assert that technologies like email, projectors, computers and the internet aid teachers to teach effectively and support their learners, and develop their knowledge, understanding and skills. In addition, the integration of different technologies in the classroom gives more power to the teachers in school, giving them more prestige, making the teachers' administration more efficient and providing professional support through the internet. Another research study by Mad Yunus, (2007) on Malaysian ESL teachers' use of technologies in their classrooms, the study found that teachers viewed technology integration as having the potential to support new learning experiences within their contexts. This indicates that teachers believe that technology in the classroom has the potential to transform teaching and learning. Also, Yu and Yu (2002) believe that technology in the classroom has contributed to students' academic achievement. Therefore, Yu and Yu (2002) further explain that the integration of technologies like whiteboard, electronic mail, internet, computer, projector in the teaching and learning may serve as the answer to revive and reignite the channels of interaction between teachers and students, and students to students; and may speed up the delivery of teaching materials. This view was supported by the Department of Education in South Africa. The Department of Education Draft White Paper on e-Education (2004) states its focus on learning and teaching for a new generation of young people who are growing up in a digital world and are comfortable with technology. The paper explains that, while the use of technology will not replace teachers in education, it will enhance the quality and reach of their teaching and reduce the time spent on administrative chores (Draft White Paper on e-Education 2004). Therefore, for technology to be successfully useful and deliver the goods expected of it such as making secondary school Business Education graduates global workers, it should be made part of the educational delivery of learning.

Also, Madu, Obidi, and Odimmege, (2015) believe that technology has become an integral part of the instructional process resulting in the development of new concepts in the logistics of instruction. The use of technological devices and machines has made teaching and learning easier, concrete, real and more result-oriented. However, since the introduction of technologies into teaching and learning activities in schools, there has been a growing concern for the use and challenges of new technologies to teach effectively. Integrating technology in teaching and learning gives students and teachers the opportunity to learn from the home, hospital or while away on holidays if they have access to technology. Lessons can be recorded so that they can rewind when confused and listen again and again (Stenger, 2014). Also, every student can have a voice and the world becomes 'real' and questions can be asked on topics of discussions from anywhere. This is something that cannot be done with textbooks (Stenger, 2014).

Technology integration in classrooms advances knowledge and skills necessary for quality education. Therefore, many opportunities are attached to its use. Osakwe (2012) believes that technology in the classroom brings fundamental changes in teaching and learning methods, thereby enabling stakeholders in education to overcome the impediments of time and place as technology introduces new choices and opportunities for students and teachers through endless research and learning on the internet. Technology integration in the classroom affords Business Education students with practical and functional knowledge of the computer, the internet and other associated devices and at the time making them more competent, rational and comfortable in this age of globalisation. Furthermore, the use of technology provides greater assistance to Business Education students to react intelligently to future changes, expand information and live successfully in a changing world as students have more chances to acquire new knowledge, fosters inquiry and adopt new approaches to learning. The use of technologies in education helps to accelerate teaching process, increase teacher's efficiency and effectiveness and provides remedial instruction and enrichment of material, thereby guaranteeing higher quality standards of teaching of Business Education in secondary schools.

Technology integration facilitates students' acquisition of new skills and potentials for active participation in the teaching/learning process. In addition, technology adoption helps to enrich the curriculum by replaces the traditional mode of teaching in secondary schools. Therefore, technology as a tool of teaching and learning in secondary provides students with the opportunity to efficiently and effectively access digital information for investigating issues and solving problems. From the above discussions on the need to integrate technology in the

teaching and learning of Business Education in secondary schools in Nigeria, it is obvious that technology has the potentials to be used as a powerful teaching and learning tool for the effective teaching and learning of Business Education is conceived as a means and not as an end (UNDP, 2000). Therefore, to this present study, the integration of technology is very strategic because of the importance of technology in education and particularly to the teaching and learning of Business Education, its immense potential, to transform the ways in which teaching is carried out in the classroom. The integration of technology into education provides opportunities for teachers and students to work better in a globalised digital age, particularly in teaching and learning environment, where teaching and learning can take place anytime and anywhere, 24-hours seven days a week (Lawrence, 2018).

2.8   BARRIERS TO TECHNOLOGY INTEGRATION IN THE STUDY OF BUSINESS EDUCATION

In 1999 Ertmer identified two broad types of barriers that impacted teachers' uses of technology in the classroom, namely internal and external barriers.

2.8.1   External Barriers to Technology Integration in Teaching and Learning

According to Ertmer (1999), the first-order barriers were defined as those that were external to the teacher and included resources (both hardware and software), training and support. Moreover, literature has shown that although first-order barriers pose significant obstacles to achieving technology integration (O'Mahony, 2003; Pelgrum, 2001), other scholars have differing opinions on barriers to technology integration in the teaching and learning. For instance, Anderson and Maninger (2007) maintained that barriers in the form of lack of resources (knowledge and skills, available technology, time, technical and administrative support) and lack of will due to incompatible beliefs about technology and teaching prevent the integration of technology by in-service teachers, for instance lack of hardware, and internet access, software, lack of training programmes, and provision of support for teachers (Dele-Ajayi, Victor, Oluwafemi, Emma, Rebecca, & Itoro (2019).

2.8.1.1   Hardware, and Internet access

In Africa, schools are faced with a lack of funds to fully install technologies that will enable effective teaching and learning. There is a lack of motivation and dedication to increase technology access, as well as access to internet-connected computers. Also, it has been reported that student-computer ratios are low in African schools. The student's access to computers, the

internet, and instructional software is inadequate to do their jobs (Anyanwu, 2014; Drexler, Baralt, & Dawson, 2008). A study by Haliso (2011) in Nigeria investigate factors responsible for poor utilisation of ICTs in the South-western Nigeria libraries. The study adopted a descriptive research design. The study found that lack of organisational commitment towards ICT acquisition constituted the highest barrier towards ICT use while, lack of ICT strategy, erratic power supply and lack of fund significantly affected ICT use. Hence, the study recommended that library and university administrators work hand in hand to ensure the ultimate utilisation of ICTs in their respective academic libraries. In addition, Olatokun, (2006) carried out a research study which focused on the prospects and challenges of IT in the Nigerian context. The study highlighted a number of challenges facing ICT in Nigeria, the study found that the greatest challenge has been that of providing adequate funding for the implementation of Nigerian IT policy, also that internet access is currently very expensive and except for a handful of links, the connections are extremely slow.

2.8.1.2   Software

In addition to hardware and infrastructure, it is evident in the literature that the wide availability of Web 2.0 tools has made access to powerful communication and collaboration tools almost a non-issue for any teacher who has internet access in his/her classroom (Drexler, Baralt, & Dawson, 2008). Meanwhile, this is not the case in African schools, especially Nigerian schools and teachers in particular. Okenjom, Ogar, Bake, and Eze-Anyim (2016) suggested that an aggressive kind of education is required for Nigerian secondary school administrators and teachers who are vested with the obligation of the teaching and learning process to be able to meet up with the current trend. Web 2.0 is the term commonly used to refer to 'second-generation' internet applications that do something "unique, practical, and/or powerful" while enabling social connections, and thus, greater collaboration among users (Brandon, 2008, p. 3). A key characteristic of Web 2.0 is the role played by users in creating, using and sharing resources.

2.8.1.3   Lack of training programmes for teachers

The most cited reason for lack of implementation of new technology is the lack of professional development (Okenjom, et al., 2016; Birch cited in Drexler, Baralt, & Dawson, 2008). Okenjom, et al., (2016) recommended that teachers in Nigerian secondary schools need adequate training and education on the integration of technology for reliable, appropriate and effective teaching and learning of Business Education subjects (Daniel, 2009).

Other scholars, Olutola and Olatoye (2015), believed that the biggest challenge is the training of teachers to use technology in their teaching. Many secondary school teachers in Nigeria are not trained to make use of some of the technological equipment. This affects teaching and learning activities massively in secondary schools (Olutola & Olatoye, 2015). Olutola and Olatoye (2015) argued that teachers lack proper training to integrate technology into their teaching. Similarly, Govender (2006) in South Africa, carried out research study in KwaZulu-Natal schools. The study found that there were more teachers teaching across different levels of education with little or no competence in technology. This is evident as there is no technological programme put in place by the government to help train teachers on technology integration in the classrooms. Daniel (2009) believed that technology has the potential to reduce some of the challenges encountered during teaching and learning activities, and aid progress in achievement development. But the major problem is in not training the teachers to use these modern technological facilities maximally. Daniel (2009) maintained that this equipment and software will have no meaningful impact on education if teachers and students are not trained to use them. While, Drexler, Baralt, and Dawson, (2008) argued that barriers to the integration of technology are in the form of lack of hardware and internet access, software and tool access, and training and support. The study also blames high licence fees, conditions imposed on those licences, limitations imposed on wireless and access, excessive import duties on equipment, and limited skill and knowledge of the available options for providing access. The study further highlighted irregular or non-existent electricity supplies are a common feature and a major barrier to the use of ICTs, especially outside the major towns. From Haliso (2011) and Olatokun, (2006) it is evident that a number of factors are affecting the effective use or implementation of ICT in Nigeria education system

2.8.1.4 Provision of support for teachers

Schrum and Levin (2009) believed that there are several different types of support needed for effective integration in schools. For instance, administrative, technological, professional and peer supports. The authors further stated that in addition to the use of technology in schools. It is important to employ technology coordinators, and several different strategies should be employed by school administrators to provide technology support to the teachers and learners (Daniel, 2009). Another challenge that faces technology integration in Nigeria is what Imogie (2002) described as a lack of institutional readiness for technology integration. Imogie (2002, p. 3), stated that these are factors related to the adoption and diffusion of educational technology as an educational innovation. The author maintained that some of the factors are in

the form of lack of professionally or academically trained personnel, poor funding and inadequate supply of facilities, equipment and materials. Imogie (2002) believes that due to these deficiencies it limits the practice and use of technology in the field of Business Education. Moreover, studies have shown that other challenges that face technology integration in Nigerian schools include lack of power supply, lack of relevant educational media in majority of subject areas, lack of professionalisation of educational technology in Nigeria and poor maintenance culture in Nigerian schools (Olutola & Olatoye. 2015; Imogie, 2002).

Similarly, Dias (1999) identified the most common barriers to technology integration in the teaching and learning which includes time, training, resources and support. The implication of this is that for any technology to be properly integrated into teaching and learning, teachers need time to learn how to use both the hardware and software, the teachers need enough time to plan and time to collaborate with other teachers. Training is very important for successful technology integration, and it is also a major concern. Some educators do not have local training options available or the time to attend training. Lack of resources also presents a problem. Without computers in the classroom and appropriate software to support the curriculum, integration may not be successful and cannot take place. Support is critical for integration to take place. There is a lack of leadership and lack of financial support

Ekpenyong and Nwabuisi (2003) believe that the lack of equipment in teaching and learning of Business Education can hamper students' academic progress, especially in skill subject areas. Therefore, there is a need to make available, functioning facilities and equipment that enhances teaching and learning of Business Education, such as modern office machines like computers, as well as office copiers (Ekpenyong & Nwabuisi, 2003). Literature has identified mostly a lack of technological resources as affecting technology integration in the teaching and learning of Business Education in Nigerian secondary schools.

2.8.2   Internal Barriers to Technology Integration in Teaching and Learning

Second-order barriers comprised those that were internal to the teacher and included teachers' confidence, beliefs about how students learnt, as well as the perceived value of technology to the teaching/learning process, while second-order barriers were considered to pose the greater challenge to technology integration in the classrooms (Dexter & Anderson, 2002; Ertmer, 1999). Scholars (Anderson & Maninger, 2007; O'Mahony, 2003; Pelgrum, 2001) believe that the main barrier to a successful technology integration in school is teacher beliefs about the role of technology in education and their ability to integrate it successfully. From Maninger

(2007); O'Mahony (2003); Pelgrum, (2001); Dexter and Anderson (2002) and Ertmer (1999), it might be said that there are different categories of barriers (e.g., resources, institution, subject culture and assessment, teacher attitudes and beliefs; knowledge and skills) that could affect successful technology integration in the teaching and learning of Business Education in Nigerian secondary schools. Therefore, technology integration is very important to this present research. As the understanding of technology integration into classroom instruction means more than teaching basic computer skills and software programs in a separate computer class in the context of this study. This study considers technology integration as an effective way of teaching and must happen across the curriculum of Business Education. As research shows that effective technology integration deepens and enhance the learning process. Therefore, teachers of Business Education must be seen as integrating technology in their teaching of Business Education subjects and in doing so must support four key components of learning, namely active engagement, participation in groups, frequent interaction and feedback and connection to real-world experts. It is essential to review some of the technology adoption theories that relate to the adoption of technology in educational environments.

2.9   CONCLUDING REMARKS

The purpose of this chapter was to consider research findings on integration of technology in Business Education teaching and learning in secondary schools, and what other studies found about integration in secondary schools. The definition of technology integration and factors affecting and promoting the process of technology integration were highlighted. Studies revealed that there are numerous factors that play a major role in determining the success and failures of technology use in teaching and learning classrooms. The studies identified a lack of electricity supply, non-availability of technology equipment and resources, poor policy implementation, lack of technology knowledge among the factors most researchers noted to be playing major role in prohibiting technology implantation in secondary schools. On the other hand, enhancing teaching and learning, fast delivery of messages, access to resources online are some the factors most studies considered are reasons people tend to integrate technology in teaching and learning. The next chapter focuses on the conceptual framework of the study.

CHAPTER THREE:
CONCEPTUAL FRAMEWORK

3.1 INTRODUCTION

The previous chapter provided a literature review on theoretical base for the research, as well as a summary of empirical studies related to aspects of integration of technology in teaching and learning of Business Education in secondary schools. In this present chapter, the conceptual framework of the study will be discussed. The study tends to discuss two different theories which are the TPACK and UTAUT. The rationale for using two theories is that each theory will cover aspects or provide information on technology integration which other theories could not cover. Therefore, it is imperative to have comprehensive information about technology integration in the teaching and learning of Business Education in secondary schools.

3.2 WHAT IS TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE?

TPACK is a framework to understand and describe the kinds of knowledge needed by a teacher for effective pedagogical practice in a technology-enhanced learning environment. TPACK, builds on Shulman's idea of pedagogical content knowledge (PCK), and attempts to capture some of the essential qualities of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge (Mishra & Koehler, 2009). Additionally, at the heart of the TPACK framework, is the complex interplay of three primary forms of knowledge: Content (CK), Pedagogy (PK), and Technology (TK) (Mishra & Koehler, 2009).

3.2.1 Rationale for Adopting TPACK Framework for this Study

The TPACK model emphasises the teacher's basic knowledge to integrate technology into the teaching and learning process. In the development of TPACK, Mish and Kohler extended on Shulman's theory of PCK to add TK (Mishra & Koehler, 2009). According to Mishra & Koehler (2009), teachers' subject knowledge and pedagogy model are closely interconnected domains in the teaching and learning processes. The TPACK model consists of three different domains which are knowledge of technology, pedagogy knowledge and CK. These three domains interact effectively by integrating technology in the teaching and learning environment (Misha & Koehler, 2008).

Additionally, Lye (2013) believed that the ideal integration of technology in the teaching and learning processes is to first understand and utilise the mutual relationships of the three primary elements of knowledge. Hence, the TPACK framework is important for this study as it will enable the researcher to identify knowledge that Business Education teachers possess in terms of TPACK. Additionally, another reason this study employed the TPACK model is that it assisted in understanding how technology expert knowledge, subject expert knowledge, and pedagogical expert knowledge can embed their expert knowledge into Business Education teaching and learning classroom to achieve effective learning processes (Lye, 2013; Misha & Koehler, 2008). Using the TPACK model is essential because the TPACK model focuses on the challenges of integrating technology in the teaching and learning by the teacher. Importantly, TPACK, addresses the "how" of teachers' knowledge of integrating technology in their teaching and learning environment (Lye, 2013). Nevertheless, the development of TPACK by teachers is considered critical for effective teaching and learning with technology (Mishra & Koehler, 2009; Niess, Lee, & Kajder, 2008). Therefore, investigating technology integration in Business Education in secondary schools in Nigeria is essential.

3.2.2   Discussions of the TPACK Framework

As International Society for Technology in Education (ISTE, 2000) pointed out that teachers teaching in the twenty-first century are faced with a high demand of preparing learners adequately to live, learn and work successfully in an increasingly complex and information-rich environment in which we live. The TPACK model focuses on the challenges of integrating ICT in the teaching and learning by the teacher. The teacher's basic forms of knowledge are included in the form of pedagogy, content and technology knowledge (Mishra & Koehler, 2009). Shulman (1986) maintains that to teach effectively, teachers need to be able to integrate multiple domains of knowledge such as knowledge of the subject matter, learners, pedagogy, curriculum and schools. Therefore, TPACK as a framework builds on Lee Shulman's construct of PCK to include technology knowledge.
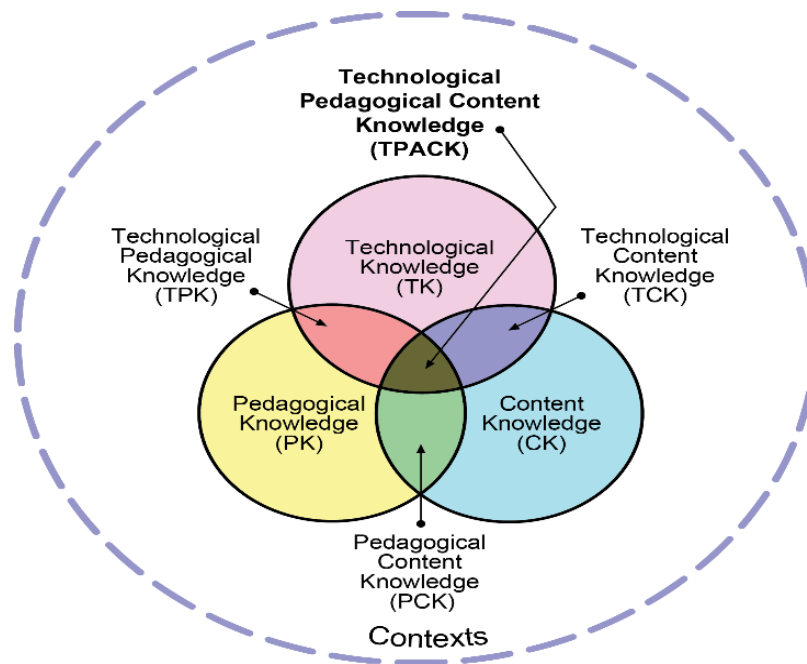
Figure 3.1:   The TPACK Model and its Knowledge Components

(Adapted from Koehler & Mishra, 2008)

Harris, Mishra, and Koehler (2009) analyse present approaches to technology integration in teaching, arguing that many current methods are technocentric, often omitting sufficient consideration of the dynamic and complex relationships among content, technology, pedagogy and context. The authors, therefore, recommend using the TPACK model as a way to think about effective technology integration, recognising technology, pedagogy, content and context as interdependent aspects of teachers' knowledge necessary to teach content-based curricula effectively with educational technologies (Harris et al., 2009). Besides, as a model for teacher knowledge, TPACK is described as a complex interaction among the three bodies of knowledge (CK, TK and PK).

3.2.2.1   *Content Knowledge*

This body of knowledge mainly is concerned about the subject area a teacher instructs (Koehler et al., 2007). Basically, CK answers the question of "what will be taught?" which includes terms, theories, ideas, constructs, and applications specific to a content area (Sahin, 2011; Margerum-Leys & Marx, 2002). Again, knowledge and the nature of inquiry differ greatly among content areas, and it is critically important that teachers understand the disciplinary "habits of mind" appropriate to the subject matter that they teach. As Shulman (1986) noted, content includes knowledge of concepts, theories, ideas, organisational frameworks, methods

of evidence and proof, as well as established practices and approaches towards developing such knowledge in a particular discipline. Therefore, the cost of teachers having an inadequate content-related knowledge base can be quite prohibitive; it can lead to students to develop and retain incorrect conceptions about and within the content area (Pfundt, & Duit, 2000).

3.2.2.2 *Technology Knowledge*

This body of knowledge refers to all instructional materials from the blackboard to advanced technologies (Koehler et al., 2007). TK is always in a state of constant change, more so than content and PK. This makes defining and acquiring it notoriously difficult. Keeping up to date with technological developments can easily become overwhelming to time-starved teachers (Sulzenko, 1999). There are, however, ways of thinking about and working with technology that can apply to all technological tools, regardless of when they emerged. In that sense, our definition of TK is similar to the notion of fluency of information technology ("FITness") as proposed by the Committee on Information Technology Literacy of the National Research Council (NRC, 1999). The committee argues that FITness goes beyond traditional notions of computer literacy to require that people understand information technology broadly enough to apply it productively at work and in their everyday lives. FITness, therefore, requires a deeper, more essential understanding and mastery of technology for information processing, communication and problem solving than does the traditional definition of computer literacy. Therefore, this conceptualisation of TK does not suggest an "end state", but rather assumes TK to be developmental, evolving over a lifetime of generative interactions with multiple technologies.

3.2.2.3 *Pedagogical knowledge*

Within the domain of teaching and learning, PK is considered as knowledge about how learners learn, teaching approaches, methods of assessment and knowledge of different theories about learning (Harris, Mishra & Koehler, 2009; Shulman, 1986). PK is deep knowledge about the processes and practices of teaching and learning, encompassing educational purposes, goals, values, strategies, and more (Koehler et al., 2007; Shulman, 1986). This is a basic form of knowledge that applies to student learning, classroom management, instructional planning and implementation and student assessment. It includes knowledge about techniques or methods used in the classroom, the nature of the learners' needs and preferences, and strategies for assessing student understanding (Koehler et al., 2007). A teacher with deep PK understands how students construct knowledge and acquire skills in differentiated ways, and as well as how

they develop habits of mind and dispositions towards learning. As such, PK requires an understanding of cognitive, social, and developmental theories of learning and how they apply to students in the classroom (Koehler et al., 2007).

Nevertheless, the approach and discussion here go beyond considering content, pedagogy and technology as being useful constructs in the teaching and learning activities. But the approach includes seeing the connections and interactions between the three elements of content, pedagogy and technology. Therefore, it is important to state that apart from the three main elements content, pedagogy and technology, the model has three other related components of knowledge areas which are: Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK), and PCK. These knowledge areas are discussed below.

3.2.2.4   *Technological Pedagogical Knowledge*

Taken together technological and pedagogical results in TPK. This knowledge highlights the existence, components and capabilities of various technologies as they are integrated into teaching and learning activities or environments. They might include an understanding that a range of tools exist for a particular task (e.g., fostering collaboration) as well as knowing what pedagogical strategies to employ to get the most out of a piece of technology (Koehler et al., 2007). TPK requires teachers to possess an understanding of general pedagogical strategies applied to maximise the use of technology in teaching and learning (Margerum-Leys & Marx, 2002). TPK is an understanding of how teaching and learning change when particular technologies are used. This includes knowing the pedagogical affordances and constraints of a range of technological tools and resources as they relate to disciplinarily and developmentally appropriate pedagogical designs and strategies. Developing TPK requires building an understanding of the potential benefits and limitations of particular technologies as they can be applied within particular types of learning activities, as well as the educational contexts within which these technologically supported activities function best.

An important aspect of TPK is the creative flexibility with available tools necessary in planning to use them for specific pedagogical purposes. The flexible use of tools becomes particularly important because most current and used software programs used in the education environment are not originally designed for educational purposes. For instance, software such as the Microsoft Office Suite (Word, PowerPoint, Excel, Outlook, and Skype) is designed for use in business environments. Web-based technologies such as blogs and podcasts are designed for purposes of entertainment, communication, and social networking (Koehler & Mishra, 2009).

Teachers, therefore, must have the knowledge and skills that allow them to appropriate technologies for pedagogical purposes, so that they can use Excel, for example, to help children organise and analyse data, and they can create podcasts as ways to share constructed knowledge with others. Thus, TPK must include a forward-looking, creative and open-minded seeking of technological application, not for its own sake, but for the sake of advancing student learning and understanding (Koehler & Mishra, 2009).

3.2.2.5   *Technological Content Knowledge*

Similarly, Technical and Content knowledge taken together produce TCK. This kind of knowledge involves understanding the manner in which technology and content are reciprocally related to each other. Teachers need to know not just the subject matter they teach but also the manner in which the subject matter is transformed by the application of technology (Koehler et al., 2007). One of the advantages of TCK in the field of teaching and learning is that it helps teachers visualise instances where technology can be effectively integrated into their teaching (Margerum-Leys & Marx, 2002). TCK includes an understanding of the manner in which technology and content influence and constrain one another. In planning for instruction, content and technology are often considered separately. It is assumed that developing content is what content experts(Business Education teachers) do.

3.2.2.6   *Pedagogical Content Knowledge*

Pedagogical and content knowledge put together results in PCK. This is in line with Schulman's (1987) idea of knowledge of pedagogy that is applicable to the teaching of specific content. This kind of knowledge includes representation and formulation of concepts, pedagogical techniques, knowledge of what makes concepts difficult or easy to learn, knowledge of student's prior knowledge and theories of epistemology (Koehler et al., 2007).

Also, it is knowledge of the most regularly taught topics in any subject area, for example, Business Education subjects, the most useful forms of representation in those areas, the most powerful analogies, illustrations, examples, explanations, and demonstrations (Shulman, 1986, p. 9). PCK is the intersection and interaction of pedagogy and CK. PCK is consistent with and similar to Shulman's (1986) conceptualisation of teaching knowledge applicable to a specific content area. It covers essential knowledge of teaching and learning content-based curricula, as well as assessment and reporting of that learning. An awareness of students' prior knowledge, alternative teaching strategies in a particular discipline, common content-related

misconceptions, how to forge links and connections among different content-based ideas, and the flexibility that comes from exploring alternative ways of looking at the same idea or problem, and more, are all expressions of PCK and are essential to effective teaching.

3.2.2.7   *Technological Pedagogical Content Knowledge*

At this point consideration of all three elements results in TPACK (earlier abbreviated to TPCK). According to Koehler et al. (2007, p. 743), at this state, the main "emphasis is that technology integration in teaching and learning requires understanding the dynamic, transactional relationship between these three knowledge components". TPACK is the centre point or connecting point of the three main elements. TPACK is different from knowledge of its individual component concepts and their intersections. It arises instead from multiple interactions among content, pedagogical, technological, and contextual knowledge (Koehler et al., 2007). Harris et al. (2009) and Koehler et al. (2007) believed that TPACK as model encompasses understanding and communicating representations of concepts using technologies; pedagogical techniques that apply technologies appropriately to teach content in differentiated ways according to students' learning needs; knowledge of what makes concepts difficult or easy to learn and how technology can help mitigate conceptual challenges; knowledge of students' prior content-related knowledge.

According to the TPACK model, technology determines the use of content and pedagogy knowledge based on the issues that teachers encounter in education (Harris et al., 2009). The starting point is thus an issue that the teacher experiences during teaching, for example in Business Education subjects, teachers often experience low student's involvement or low pass rate for a course. This could be solved by using an appropriate technology instrument that matches the CK. The teacher can change the content and the transfer of content, the pedagogy, on the basis of the instrument in order to solve the problem. In this way, the teacher learns to look in a different way at the problem or the issue and the role of technology.

3.2.3   Studies of the TPACK Framework

In a study by Chai, Ng, Li, Hong, and Koh, (2013) in China sought to validate and model the TPACK framework among Asian preservice teachers. The study attempted to validate a TPACK efficacy survey by implementing it on a group of 550 preservice teachers from China, Hong Kong, Singapore and Taiwan. The seven factors underlying the TPACK framework were identified, which suggested the research instrument to be valid and reliable. The structural

equation model proposed based on the TPACK framework supported eight out of 12 hypotheses about the relationships between TPACK constructs. The study found that the positive effects of the basic knowledge factors of CK, PK and TK were indirect, occurring through the second layer of knowledge factors (TPK, TCK and PCK).

Similarly, Jang and Tsai, (2012) conducted a study that explored the TPACK of Taiwanese elementary mathematics and science teachers with respect to the use of interactive whiteboards (IWBs). The purposes of the study were to examine Taiwanese elementary mathematics and science teachers' TPACK with respect to the current use of IWBs. The study found that there were significant differences in the TPACK of elementary teachers who used IWBs compared to teachers who did not use IWBs. Furthermore, the results indicate that elementary science teachers demonstrated significantly higher TPACK than elementary mathematics teachers. The study did not find any significant difference in teachers' TPACK according to gender, but the results also showed that teachers' TPACK differed significantly on the basis of teachers' varying amounts of teaching experience. Teachers who had more years of teaching experience demonstrated significantly higher TPACK than did teachers who had fewer years of teaching experience. Equally, Baturay, Gökçearslan and Sahin (2017) carried out a study which investigated the attitudes of teachers towards Computer-Assisted Education (CAE) and their knowledge of technology, pedagogy and content via the TPACK model that assesses the competencies for developing and implementing successful teaching. The study employed 280 participants, and found that teachers' attitudes towards CAE scores are much higher than their TPACK scores. The results of the study showed a low-level positive correlation between their TPACK competencies and their attitudes towards CAE.

A recent study by Önal and Alemdag, (2018) aimed to reveal the changes in preservice teachers' TPACK competencies in the educational website design process and their experiences in the design process within the scope of a course based on the TPACK framework and the learning by design approach. The study was conducted with 28 preservice teachers, data were collected through the TPACK-deep scale, a survey and emails sent to the instructors. The study concluded that a course adopting the learning by design approach made important contributions to participants' TPACK competencies. The findings from the study revealed that the design process expands preservice teachers' schemas regarding the properties which digital instructional materials should possess. Also, the research highlighted the motivating factors

such as receiving support and challenging factors such as not being able to use software for the preservice teachers in the design process.

 Based on the analysis of the TPACK model in this study, it can be argued here that knowledge of technology cannot be treated as context-free, and that good teaching requires an understanding of how technology relates to the pedagogy and content. So, technology cannot be treated as a knowledge base unrelated and separate from knowledge about teaching tasks and contexts (Koehler et al., 2007). In this study, the approach is not only about what technology can do, but also, more importantly, what technology can do for them (secondary school teachers and students) in Nigeria. Hence, the TPACK model is considered relevant to this present study, especially considering the multitude of challenges facing Business Education in Nigeria. Therefore, the TPACK model assisted the researcher in understanding the kinds of knowledge that Business Education teachers possess, and identify some flaws and then recommend what can lead to effective teaching and learning of Business Education in Nigeria.

3.3   UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY

The UTAUT is a Technology Acceptance Model that was formulated by Venkatesh, Morris, Davis and Davis (2003). The model is regarded as one of the most popular models in technology acceptance with four core determinants of intention and usage. The model created a complete picture and comprehensive understanding of the acceptance process than any previous individual model (Chen, 2011; Venkatesh et al., 2003). UTAUT as a model for technology acceptance aims to explain user intentions to use information systems and further the usage behaviour (Venkatesh et al., 2003). The model holds that there are four key constructs to understand user technology acceptance which is, "performance expectancy, effort expectancy, social influence and facilitating conditions" (Venkatesh et al., 2003, p. 425).
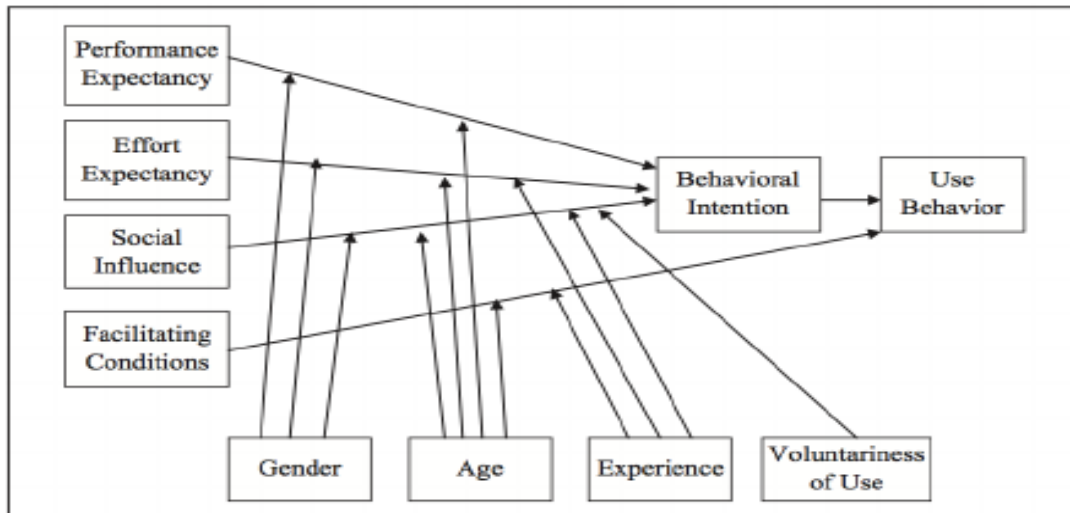
Figure 3.2: **The unified theory of acceptance and use of technology model**

(Venkatesh et al., 2003).

Performance expectancy refers to "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Ahmad, 2015, p. 2). Also, effort expectancy represents "the degree of ease associated with the use of the system" (Ahmad, 2015, p. 3). The social influence is the "degree to which an individual perceives that important others believe he or she should use the new system" (Ahmad, 2015, p. 3). Facilitating conditions denote the "degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system" (Ahmad, 2015, p. 3).

Ahmad (2015) argued that the first three of the four constructs represents direct determinants of usage intention and behaviour, while the fourth is a direct determinant of user behaviour. Furthermore, gender, age, experience, and voluntariness of use are posited to moderate the impact of the four key constructs on usage intention and behaviour (Ahmad, 2015; Alshehri, 2013; Chen, 2011; Venkatesh et al., 2003, p. 425). The model further explains how individual differences influences technology use, and intention to use can be moderated by age, gender, and experiences (Venkatesh et al., 2003). Accordingly, the motivation between perceived usefulness and intention to use varies with age and gender, in a way that it is more significant for male and younger workers (Alshehri, 2013; Venkatesh et al., 2003).

Studies have shown the relative importance of this theory in the field of education, for instance, a study by Abu-Al-Aish and Love (2013) on the role of mobile learning in the development of teaching and learning methods for higher education. The focus of the study was on the factors

that affect university students' intentions to accept mobile learning (m-learning). Based on the UTAUT (Venkatesh et al., 2003), this study proposes a model to identify the factors that influence the acceptance of m-learning in higher education and to investigate if the prior experience of mobile devices affects the acceptance of m-learning. A structural equation model was used to analyse the data collected from 174 participants. The study found that performance expectancy, effort expectancy, the influence of lecturers, quality of service and personal innovativeness were all significant factors that affect behavioural intention to use m-learning. Prior experience of mobile devices was also found to moderate the effect of these constructs on behavioural intention. The results of this research extend the UTAUT in the context of m-learning acceptance by adding quality of service and personal innovativeness to the structure of UTAUT and provide practitioners and educators with useful guidelines for designing a successful m-learning system (Abu-Al-Aish & Love, 2013).

Wang, Wu and Wang (2009) conducted a research study on the factors that affect user intention to use m-learning. Based on the UTAUT, which integrates elements across eight models of information technology use, the study investigated the determinants of m-learning acceptance and tried to discover if there existed either age or gender differences in the acceptance of m-learning, or both. Data was collected from 330 respondents in Taiwan and was tested against the research model using the structural equation modelling approach. The study found that performance expectancy, effort expectancy, social influence, perceived playfulness, and self-management of learning were all significant determinants of behavioural intention to use m-learning. Also, the result of the study indicates that age differences moderate the effects of effort expectancy and social influence on m-learning use intention, and that gender differences moderate the effects of social influence and self-management of learning on m-learning use intention.

Kallaya, Prasong, and Kittima (2009) carried out a study which the objectives were to assess the likelihood of acceptance in mobile learning (m-learning) and to study main factors that effect to use mobile learning that focus on higher education students in Thailand. The approach of the study was both quantitative and qualitative approach, also the surveyed 390 students as participants of the study. The samples of the study were selected on the probability basis that using stratified random sampling of two groups: the private universities and the public universities in Thailand. The modified acceptance framework based on the UTAUT model is adapted to determine the factors that influence the students' intention to use m-learning. The

study found that the acceptance level of students on m-learning is at a high level. Therefore, the analyses of this theory, on the other hand, enables the researcher to understand what determines Business Education teachers' technology acceptance.

3.3.1   Rationale For Adopting UTAUT Model For This Study

The UTAUT model for technology acceptance is important for this study because the model aims to explain user intentions to use technology, and as well as the usage behaviour. This model helped the researcher to collect data for the study. Also, this model is important because it assisted the researcher to understand why some teachers integrate technology in their teaching of Business Education and why some do not integrate technology in their teaching of Business Education.

3.4   CONCLUDING REMARKS

This chapter has analysed three different theories or models, namely TPACK and UTAUT. The models were used to ensure that the necessary data needed for the study was secured, thereafter, the intention is to present a type of developmental model that can be used with present Business Education teachers and future teachers of Business Education to ensure they teach Business Education effectively in secondary schools.. The TPACK model assisted the researcher in understanding the kinds of knowledge that Business Education teachers possess, and identify some flaws and then recommend what can lead to effective teaching and learning of Business Education in Nigeria.

CHAPTER FOUR:
RESEARCH DESIGN AND METHODOLOGY

4.1   INTRODUCTION

The previous chapter presented a conceptual framework of the study. This chapter presents and explains the different steps or processes that led to the generation of data that were utilised to provide answers to the main research questions of this study. This chapter provides the discussion on the design of the research, methodological approach and the paradigmatic perspective according to which the phenomenon was investigated, and as well as the context, data generation process, ethical considerations, sampling strategies and techniques used in analysing and interpreting data. More importantly, all the discussions in this chapter are presented in two different phases. The first phase provides discussions on a quantitative aspect of this chapter, and the second phase provides discussions on the qualitative aspect of this chapter. This is necessary because this study falls under an explanatory sequential mixed-methods research design. Therefore, to understand the different knowledge that Business Education teachers possess and the technologies used in teaching Business Education in Nigerian secondary schools, data were generated through focus group discussions, face-to-face interviews and a questionnaire.

4.2   RESEARCH DESIGN

Nworgu (1991) states that a research design is a blueprint or plan which stipulates how data relating to a given problem should be collected and analysed. The research design also provides a procedural outline for the conduct of any given investigation. Therefore, the research design is important because of its significance in providing the researcher with the necessary framework for tracking a particular educational problem (Nworgu, 1991). The design in a research study specifies a true "reflection of the methodological requirement of the research question and of the type of data that will be elicited and how the data will be processed" (Henning, 2006, p. 36).

Also, Creswell (2012), defines research design as a specific procedure involved in the research process. Leedy (1997) describes research design as a plan for a study, which offers the overall framework for collecting data. MacMillan and Schumacher (2001) stated that it is a plan for selecting subjects, research sites and data collection procedures to answer the research

question(s). The authors MacMillan and Schumacher further argue that the goal of research design in any form of research is to provide results that are judged to be credible. For Durrheim (2004), the research design is a strategic framework for action that serves as a bridge between research questions and the execution, or implementation of the research strategy. Other authors describe research design as a "plan that guides every research, an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure" (Sellitz, Jahoda, Deutsch & Cook, 1965, p. 50). Having a research design is important for this study, because the aim of a research design is to plan and structure a given research project in such a manner that eventual validity of the research findings is maximised (Mouton & Marais, 1990). Therefore, the research design in this study is used to obtain answers to the research questions posed earlier. As such it will discuss the approach to the study, which is mixed-methods, the type which is explanatory sequential design, sampling and sampling method, data generation, as well as the analyses of the data generated. The next section will describe the research approach used in this study.

4.3   RESEARCH APPROACH

Studies indicate that quantitative and qualitative research designs have been utilised independently of each other in educational research. This has led to continuous debate many of which have been antagonistic. Quantitative researchers have been referred to as positivists and qualitative researchers have been referred to as hermeneutics (Caruth, 2013). Also, quantitative researchers have often claimed that qualitative research was difficult to generalise, interpret and duplicate. At the time, qualitative researchers have claimed quantitative researchers utilised immaterial hypotheses and shallow descriptions (Caruth, 2013). One glaring difference between these two approaches is that the goal of quantitative research is to propose a hypothesis to be accepted or rejected while the goal of qualitative research is to produce a hypothesis (Cronholm, & Hjalmarsson, 2011). Usually, it is accepted that a greater depth of understanding of the study is generally gained by qualitative research than by quantitative research, while better objectivity and generalizability is obtained by quantitative research (Lund, 2012). Therefore, mixed-methods research evolved in response to the observed limitations of both quantitative and qualitative designs (Caruth, 2013).

4.4   DEFINING MIXED-METHODS RESEARCH APPROACH

Several authors (Burke & Onwuegbuzie, 2005; Burke et al., 2005; Kemper, Springfield & Teddlie, 2003; Creswell, Fetters & Ivankova, 2004; Johnson & Onwuegbuzie, 2004) working

in the field of mixed-methods research has defined mixed-methods research in different ways. For instance, Burke and Onwuegbuzie (2005) define mixed-methods research as a natural complement to using either of the traditional qualitative or quantitative research methods in a single study. Mixed-methods research approach belongs to the class of research study where the researcher combines or mixes qualitative and quantitative research techniques, methods, approaches, concepts or language in a single study. Similarly, Burke et al. (2005) maintain that mixed-methods research is a third wave or third research movement that moves past paradigm wars by offering a logical and practical alternative. While Kemper, Springfield and Teddlie (2003) refer to mixed-methods design as a method that includes both qualitative and quantitative data collection and analysis in parallel form (concurrent mixed-method design in which two types of data are collected and analysed in a sequential form). On the other hand, Creswell, Fetters, and Ivankova (2004, p. 7) contend that:

> *"Mixed-methods research is more than simply collecting both qualitative and quantitative data; it implies that data are integrated, related or mixed at some stage of the research process. They further indicate that the underlying logic to mixing is that neither qualitative nor quantitative methods are sufficient in themselves to capture the trends and details of the situation. When used in combination, both qualitative and quantitative data yield a more complete analysis, and they complement each other".*

Moreover, Johnson and Onwuegbuzie (2004, p. 17) indicate that mixed-methods research includes the use of induction which refers to the discovery of patterns, a deduction which involves testing theories and hypotheses, and abduction which refers to uncovering and relying on the best set of explanations for understanding one's results.

Other scholars in the field of mixed-methods research have to define mixed-methods research in several other ways. For instance, Johnson, Onwuegbuzie and Turner (2007, p. 123) argued that "mixed-methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration". Also, Creswell and Clark (2007) maintain that the central idea of mixed-methods research is the use of quantitative and qualitative approaches in combination, to provide a better understanding of research problems than either approach alone. On the other hand, Johnson and Onwuegbuzie (2004) described mixed-methods research approach as the class of research where the researcher

mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single research study. From the discussions, it is evident that there is no generally agreed definition of mixed-methods research. Yet, one obvious thing emerging from the definitions is that mixed-methods research approach has become a valid alternative to either quantitative or qualitative research designs. In addition, studies have shown that mixed-methods research as the third major research approach or research paradigm, along with qualitative research and quantitative research has advanced increasingly in recent years and has expanded to different fields of study, for instance, health and medical sciences including fields such as nursing, family medicine, social work, mental health, pharmacy, and other (Johnson, Onwuegbuzie & Turner, 2007). This advancement of mixed-methods research has been championed by authors such as John Creswell, Abbas Tashakkori, Burke Johnson, Anthony Onwuegbuzie, Jennifer Greene, Charles Teddlie and David Morgan.

Additionally, the mixed-methods approach has emerged in the last decade as a research movement with a recognised name and distinct identity. It has evolved to the point where it is ''increasingly articulated, attached to research practice, and recognised as the third major research approach or research paradigm'' (Johnson, Onwuegbuzie, & Turner, 2007, p. 112). Importantly, mixed-methods research procedures in the last decade have been developed and refined to suit a wide variety of research questions (Creswell & Plano Clark, 2011). According to Creswell and Plano Clark (2011), these procedures include the following but not the least, advancing rigour, offering alternative mixed-methods designs, specifying a shorthand notation system for describing the designs to increase communication across fields, visualising procedures through diagrams, and as well as noting research questions that can particularly benefit from integration, and at the same time developing rationales for conducting various forms of mixed-methods studies. Hence, this present research study adopts a mixed-methods research approach.

4.4.1   Rationale for Using Mixed-Methods Research Approach

The idea for using mixed-methods approach in this study is that the use of both quantitative and qualitative methods, in combination, provides a better understanding of a research problem and question than either method by itself (Creswell, 2012). The mixed-methods research approach is necessary for this study as the researcher tries to uncover information and perspective, increase corroboration of the data, and render less biased and more accurate conclusions about technology integration in the teaching and learning of Business Education

in secondary schools in Nigeria. The purpose and value of mixed-methods research approach are numerous, essential and diverse. For instance, in their research study titled "Bridging the qualitative-quantitative divide: Guidelines for conducting mixed-methods research in information systems" (Venkatesh, Brown & Bala, 2013, p. 35), presented seven purposes for mixed-methods research approach which are as follows: Complementarity, completeness, developmental, expansion, corroboration/confirmation, compensation and diversity (Venkatesh et al. 2013, p.36).

> *"(1) Complementarity means to obtain mutual viewpoints about similar experiences or associations. (2) Completeness is to ensure total representation of experiences or associations is attained. (3) Developmental refers to building questions from one method that materialize from the implications of a prior method or one method presents hypotheses to be tested in a subsequent method. (4) The expansion means to clarify or elaborate on the knowledge gained from a prior method. (5) Corroboration/Confirmation is to evaluate the trustworthiness of inferences gained from one method" (Venkatesh et al., 2013, p. 26).*

Therefore, understanding the purposes for which mixing qualitative and quantitative methods is deemed appropriate in a research inquiry is important.

Due to the rapid advancement of a new and complex collection of information technologies (IT), organisations like schools and their stakeholders (teachers and students) are constantly faced with new challenges related to their understanding of IT capabilities, practices, usage, and their impacts on teaching and learning (Venkatesh et al., 2013). According to Venkatesh et al., (2013, p. 24) the "diffusion of the internet, the proliferation of numerous nonwork-related systems and social media, and the availability of myriad IT-enabled devices have now made IT an integral part of individuals' lives". Following the rapid change in our environment, especially our school environment, researchers often encounter situations in which existing theories and findings do not sufficiently explain or offer significant insights into a phenomenon of interest. Mixed-methods design strategies provide a powerful mechanism for researchers, more importantly, IS researchers to deal with such situations and subsequently make contributions to theory and practice (Venkatesh et al., 2013). Therefore, below are the three listed major strengths of mixed-methods research, which describe the importance of conducting research using a mixed-methods approach.

First, mixed-methods research has the ability to address confirmatory and exploratory research questions simultaneously (Teddlie & Tashakkori 2003, 2009).

Second, mixed-methods research has the ability to provide stronger inferences than a single method or worldview (Teddlie & Tashakkori 2003, 2009, cited in Venkatesh et al., 2013). For example, interviews as a qualitative data collection approach can provide depth in a research inquiry by allowing researchers to gain deep insights from rich narratives. Surveys, a quantitative data collection approach, can bring breadth to a study by helping researchers gather data about different aspects of a phenomenon from many participants. Thus, using these two data collection approaches in a single research study can help researchers make better and more accurate inferences.

Finally, mixed-methods research provides an opportunity for a greater assortment of divergent and/or complementary views (Teddlie & Tashakkori 2003, 2009). For instance, when conducting mixed-methods research, a researcher may find different (e.g., contradictory and complementary) conclusions from the quantitative and qualitative strands. Such divergent findings are valuable. This is because they lead to a re-examination of the conceptual framework and the assumptions underlying each of the two strands of mixed-methods research (Venkatesh et al., 2013). Therefore, a mixed-methods research approach is relevant and suitable for this present research study. This is because mixed-methods research assisted the researcher to improve the accuracy of the data collected, and to produce a more complete picture by combining information from complementary kinds of data or sources which are quantitative and qualitative. Furthermore, mixed-methods research enabled the researcher to avoid biases intrinsic to single-method approaches, as the mixed-methods approach was used as a way of compensating specific strengths and weaknesses associated with particular methods. Mixed-methods were used in this research study as a way of developing the analysis and building on initial findings using contrasting kinds of data and methods. Sale, Lohfeld and Brazil (2002, p. 46) arguing on the importance of the two methods stated that

> *"The two approaches (quantitative and qualitative) can be combined because they share the goal of understanding the world in which we live. They are thought to be compatible because they share the tenets of theory-ladenness of facts, the fallibility of knowledge, indetermination of theory by the fact, and a value-ladened inquiry process. They are also united by a shared commitment to understanding and improving the human condition, a common goal of disseminating knowledge for practical use, and a*

shared commitment for rigor, conscientiousness and critique in the research process. Both approaches provide for cross-validation or triangulation, combining two or more theories or sources of data to study is useful because the complexity of phenomena requires data from a large number of perspectives" (Sale, Lohfeld & Brazil 2002, p. 46).

In support of Sale et al. (2002), Collins, Onwuegbuzie and Sutton (2006) identify the following rationales for mixing qualitative and quantitative approaches: participant enrichment, instrument fidelity, treatment integrity and significance enhancement.

Participant enrichment refers to the mixing of quantitative and qualitative techniques for the purpose of improving the sample. It also means increasing the number of participants in a single research study. The sample used for this study was limited to 45 secondary schools in the region of Mbaise, in Imo State, Nigeria, where at least eight to 15 respondents from each school completed the questionnaire. If all the schools had responded to the questionnaires, a total of 400 questionnaires would have been returned and analysed. It is important to have a larger sample because, according to Onwuegbuzie and Leech (2006) the larger the sample, the more reliable and valid the research findings will be.

Similarly, instrument fidelity refers to maximising the appropriateness and/or utility of the instruments used in the study, whether quantitative or qualitative (Onwuegbuzie & Leech, 2006). In this present study, three instruments were used, questionnaires, interviews and focus group discussions. The questionnaire, interviews and focus group discussions were appropriate for this study; in as far as they assisted the researcher with information regarding the teachers' technology use.

On the other hand, treatment integrity refers to mixing quantitative and qualitative techniques in order to assess the fidelity of interventions, treatments, or programs; and significance enhancement refers to maximising the two approaches/techniques in order to maximise researchers' interpretations of data (Onwuegbuzie & Leech, 2006). More importantly, in this research study, mixed-methods research approach was used as an aid to sampling. For instance, questionnaires were used in this study to screen potential participants for inclusion in an interview program (Bryman, 2006; Greene et al., 1989; Rocco, Bliss, Gallagher, & Pérez-Prado, 2003; Collins et al., 2006). Therefore, a mixed-methods approach was used in this study for the purpose of gaining a better understanding of the research problem. The rationale for

using this approach in this study is grounded in the fact that neither quantitative nor qualitative methods are sufficient, by themselves, to capture the trends and details of technology integration in the teaching and learning of Business Education in Nigerian secondary schools (Tashakkori & Teddlie 2003; Creswell 2005).

Additionally, there are different mixed-methods research designs. Tashakkori and Teddlie (2003) noted that there are about 40 mixed-methods research designs reported in the mixed-methods literature. However, Creswell et al. (2003) identified only six most often used designs, which include three concurrent and three sequential designs. Hence, this study employed mixed-methods sequential explanatory design. The next section will present information on mixed-methods sequential explanatory design.

4.4.2   Explanatory Sequential Design

The mixed-methods explanatory sequential design consists of two phases which are quantitative followed by qualitative (Ivankova, Creswell, & Stick, 2006; Creswell, Clark, Gutmann & Hanson, 2003). Creswell (2012) states that an explanatory sequential mixed-methods research – also called a two-phase model (Creswell & Plane, 2011) – is made up of first collecting quantitative data and thereafter collecting qualitative data so as to help explain or elaborate on the quantitative results). This type of mixed-methods research design entails the researcher to first collect and analyse the quantitative (numeric) data and later the qualitative (text) data are collected and analysed (Creswell et al., 2003). The quantitative data is used to explain and elaborate on the quantitative results obtained in the first phase, and followed by the qualitative which is the second phase builds on the first phase which is the quantitative (Ivankova et al., 2006).

The purpose for this design for the researcher to produce the good and acceptable result. Therefore, collecting and analysing quantitative data, then followed by qualitative data in two consecutive phases within one study must be followed and maintained (Ivankova et al., 2006). In addition, to conduct this type of study some key issues are to be maintained and followed which include "deciding on the priority or weight given to the quantitative and qualitative data collection and analysis in the study, the sequence of the data collection and analysis, and the stage/stages in the research process at which the quantitative and qualitative data are connected and the results are integrated" (Ivankova, Creswell & Stick, 2006, p. 1).

4.4.2.1   *Rationale for Using Explanatory Sequential Design*

The rationale for using explanatory sequential design in this study is that the quantitative data and results provided the researcher with a general picture of the research problem. Therefore, more analysis was needed and was done specifically through qualitative data collection to refine, extend and explain the general picture provided through quantitative results (Creswell, 2012). Similarly, the explanatory sequential design has an advantage of clearly identified quantitative and qualitative parts, and this is an advantage for readers as well as for the researcher who designs and conducts this study. The explanatory sequential design captures the best of both quantitative and qualitative data – obtaining quantitative results from a population in the first phase, and then refining or elaborating these findings through an in-depth qualitative exploration in the second phase (Creswell, 2012). The rationale for using explanatory sequential approach is because the two phases are connected in the intermediate stage of this present study (Ivankova et al., 2006). Therefore, the quantitative data and its subsequent analysis provided the researcher with a general understanding of the research problem. The qualitative data and its analysis refined and explained those statistical results by exploring participants' views in more depth (Tashakkori & Teddlie 1998; Creswell et al., 2003). Hence, the mixed-methods explanatory sequential design is important and suitable for this study, because it provided the researcher with straightforwardness and opportunities for the exploration of both quantitative and qualitative results in more detail. On the other hand, some limitations identified in using this design are length of time and feasibility of resources to collect and analyse both types of data (Ivankova et al., 2006; Creswell et al., 2003).

4.5   RESEARCH PARADIGM

In this section, it is important to begin with a discussion of the paradigm by defining the concept paradigm as well as various perspectives before discussing the paradigmatic assumptions of this study. To researchers Tashakkori and Teddlie (1998), paradigms are contrasting worldviews or belief systems that are a reflection of and guide the decisions that researchers make. Bryman (2004) considers a paradigm to be a cluster of beliefs and dictates which, for scientists in a particular discipline influence what should be studied, how research should be done and how results should be interpreted. On the other hand, Creswell (1998); Rocco, Bliss, Gallagher, and Pérez-Prado, (2003, p. 20) believe that a paradigm is a worldview or "basic set of beliefs or assumptions that guide" a researcher's inquiry. What the above discussions simply mean is that every researcher brings to the field of research his or her "set of interlocking

philosophical assumptions and stances" (Greene & Caracelli, 1997, p. 6). In support of Greene and Caracelli (1997), Check and Schutt (2012) argued that different researchers are guided by different research philosophies. This implies that having a viewpoint on what constitutes reality, and naturally how we think about reality has implications for what methods we use to investigate that reality. Therefore, it is important to know that these set of philosophical assumptions and stances include the researcher's ontological beliefs, those about the nature of reality (Creswell, 1998). Also, this nature of reality is explored through a researcher's answers to problems such as what is the nature of the world, which includes the social phenomena; and if reality is orderly and lawful; the existence of a natural social order; if reality is fixed and stable or constantly changing, and whether it is unitary or multiple; and if reality can be "constructed by the individuals involved in the research situation" (Creswell, 1998, p. 76).

On the other hand, associated with the researcher's beliefs about what is real are those epistemological beliefs concerning what it is possible for one to know. Again, a paradigm also includes axiological beliefs which relate to those concerning ethics. On this note, researchers are confronted with the question of what it means to "Do the (ethically) right thing". And they tend to examine the relationship between their values and social research. They question the role of values in research. Researchers' beliefs about reality, knowledge, and values "guide and frame" their beliefs about research method (Greene & Caracelli, 1997, p. 6). Therefore, this study adopts pragmatic philosophy as the research paradigm.

4.5.1   Pragmatism as the Research Paradigm

Armitage (2007) believes that the pragmatic paradigm as a set of beliefs arose as a single paradigm response to the debate surrounding the paradigm wars and the emergence of mixed-methods and mixed models approaches. Peirce (1931), James (1907), Dewey (1931) and Mead (1938) are the known advocates of pragmatism as a philosophic alternative to abstract and rationalistic science. Pragmatism has a clear foundation in empiricism but goes beyond a pure orientation to the observation of a given reality (Feilzer, 2010). Pragmatism is a research paradigm that advocates the use of mixed-methods in research, and "sidesteps the contentious issues of truth and reality" (Feilzer 2010, p. 8), and "focuses instead on 'what works' as the truth regarding the research questions under investigation" (Tashakkori & Teddlie 2003b, p. 713).

Additionally, pragmatism is generally regarded as the philosophical partner for the mixed-methods approach. As a research paradigm for this study, pragmatism provides a set of

assumptions about knowledge and inquiry that underpins the mixed-methods approach and distinguishes the approach from purely quantitative approaches that are based on a philosophy of (post)positivism and from purely qualitative approaches that are based on a philosophy of interpretivism or constructivism (Johnson & Onwuegbuzie, 2004; Maxcy, 2003; Rallis & Rossman, 2003). Therefore, pragmatism as a research paradigm for this study is important because it helps the researcher to shed light on how research approaches can be mixed fruitfully (Hoshmand, 2003). Additionally, pragmatism is well suited for this research study because it is the belief that every research approach should be mixed in ways that offer the best opportunities for answering important research questions. Consequently, pragmatism as a research paradigm is important and suitable for this research study because it will allow the researcher to be free of mental and practical constraints imposed by the ''forced choice dichotomy between post-positivism and constructivism'' (Creswell & Plano Clark, 2007, p. 27). Furthermore, pragmatism as a research paradigm is important because researchers working under pragmatic philosophy do not have to ''be the prisoner of a particular research method or technique'' (Robson, 1993, p. 291).

4.6   THE CONTEXT OF THE STUDY

This research study was conducted in 45 secondary schools in Mbaise region. Mbaise is a regional area located in Imo State, south-eastern Nigeria. This research study specifically focused on Business Education subjects. The schools are located in the three municipalities/local government areas in Mbaise region (Ezinihitte Mbaise Local Government, Aboh Mbaise Local Government and Ahiazu Mbaise Local Government). The population of Mbaise region as of 2006 was estimated to be 735,800 people (Agulanna, 2008). The region has access to electricity, and the road network is well structured and connected to other regions like Obowo, Mbano, Owerri, Aba and Umuahia, all in South-Eastern Nigeria. The participants of this study are Business Education teachers numbering about 400 from 45 secondary schools in the three municipalities/local government areas (that is, 10-15 secondary schools in each municipality) of Mbaise region.

4.7   SAMPLE AND SAMPLING TECHNIQUES

Kennedy (2008) claims that one of the most important factors that determine if a research study will produce accurate results is the sample. The author Kennedy further defines a sample as a subset of the population a researcher is studying that is selected for the actual population. Kemper, Stringfield & Teddlie, (2003) stated that sampling techniques can be divided into

probability sampling and purposive sampling. In a mixed-methods research study, Creswell (2007) argue that mixed-method sampling strategies involve the selection of cases for a research study using both probability sampling, which is aimed to increase the external validity of the research study, and purposive sampling strategies aimed to increase transferability of the research findings. The combination of the two sampling strategies allows the researcher to generate well balance records that include comprehensive information that has both depth and breadth regarding the phenomenon under study. De Vos et al. (2005) maintain that sampling means taking a part of a population and seeing it as representative of that population. Therefore, this study, which is a mixed-methods research, employed both probabilities which are also referred to as random sample and purposive sampling techniques.

Probability sampling also known as a random sample is a sampling technique in which each member of the population has the same chance of being chosen for the sample (Lumadi, 2015). In this case, it means that the chances of a member of the wider population being selected for the sample are known; hence, inclusion or exclusion from the sample is a matter of chance and nothing more (Cohen, Mannion & Morrison, 2011). Probability sampling will be useful in this study in order to increase external validity (Lumadi, 2015; Cohen et al., 2011). Some of the good things about probability sampling are the ease of gathering the sample. Probability sampling is also considered as a fair way of selecting a sample from a given population since every member is given equal opportunities of being selected. Also, unbiased random selection and a representative sample are important in drawing conclusions from the results of a study. Therefore, this study used probability sampling to choose Business Education teachers in the region of Mbaise, in Imo State, Nigeria. Thus, probability sampling is considered suitable for this study as it enabled the researcher to seek a proper representative of the wider population.

On the other hand, purposive sampling was also adopted in this study. "Purposive or nonprobability samples are samples in which the researcher uses some criterion or purpose to replace the principle of cancelled random errors" (Kemper et al., 2003, p. 279). Furthermore, the sample of this study is purposefully limited to secondary schools in Mbaise region that are government approved and offers any Business Education subjects either at junior secondary or senior secondary level or both. Also, the sample of this study is purposefully limited to Business Education teachers at secondary schools in Mbaise region in Imo State, Nigeria. Kemper et al., (2003) argue that the rationale and power of purposive sampling lie in selecting information-rich cases for study in depth. The authors further claim that purposive techniques

seek to focus and minimise the sample size generally in non-random ways, so as to select only those cases that might best illuminate and test the hypothesis of the research team (Kemper et al., 2003, p. 279). Therefore, this study used a questionnaire, focus group discussion and face-to-face interviews in collecting data in secondary schools that offer Business Education subjects. The participants selected in this study were teachers of any Business Education subjects (Accounting, Economics; Commerce, Business Studies; Typewriting, Stenography, Secretarial studies, Bookkeeping and Shorthand). Hence, a purposive sample technique was used in this study to sample Business Education teachers teaching in secondary schools in the region of Mbaise in Imo State, Nigeria for both face-to-face interviews, and focus group discussions.

On the population of the study, McMillan & Schumacher (2010) defined the term population as a group of individuals, organisations or cases that possess the same characteristics to which the results of the research can be generalised. Similarly, Polit and Hungler (1999) refer to the population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications. In this study, the population was Business Education teachers in secondary schools both public and private in Mbaise region, Imo State. The Imo State ministry of education statistics shows that as of 2016, there were 75 government approved secondary schools operating in the region of Mbaise. However, only 45 secondary schools were identified that offer at least one to five Business Education subjects both in the junior and senior secondary sections.

4.7.1 Determining The Sample Size

In this study, purposive sampling was used in selecting schools. The schools involved in the study were schools registered with the government, offering Business Education subjects. According to the Imo State ministry of education. The information on their website shows that as of 2016 only 75 government-approved secondary schools operate in the region of Mbaise. However, only 45 secondary schools have identified that offer at least one to five Business Education subjects both in the junior and senior secondary levels. Therefore, secondary schools that offer at least one to five Business Education subjects were identified, and teachers that teach any of the Business Education subjects in the schools selected were identified for the study both in private and public schools.

Another criterion is that the schools involved in the study were selected with the guidance of the Imo State ministry of education statistics which shows that the schools usually register their

learners/students for the following national examinations in the country on a yearly basis. For instance, the National Examinations Council (NECO); West African Examinations Council; National Business and Technical Examination Board (NABTEB).

The National Examinations Council (also known as NECO) is an examination body in Nigeria that conducts the Senior Secondary Certificate Examination and the General Certificate in Education in June/July and December/January respectively. Also, the West African Examinations Council is an examination board that conducts the West African Senior School Certificate Examination in West African countries. Similarly, National Business & Technical Examination Board (NABTEB) is one of the examination bodies set up by the Federal Government in 1992 to reduce the burden of conducting examinations, which involve a lot of technical and trade-related practical, which were formerly bored by WAEC. The board conducts the National Technical Examination (NTC), National Business Certificate (NBC) (FGN, 2012). Therefore, the researcher sampled 45 secondary schools distributed across the three Local government areas in Mbaise region. In each LGA, 10-20 schools were sampled. This number includes both schools in the urban areas and schools from the semi-urban and/or rural areas. The number of teachers in the schools that received the questionnaire ranged from eight to 15 teachers. The number of teachers selected from each school depends on the number of Business Education subjects that the school offer both in the junior secondary school level and in the senior secondary school level.

Table 4.1: **Distribution of schools and Business Education teachers in each Local Government Area in Mbaise region**

Name of LGA	Number of schools	Teachers teaching both in junior and senior sections	Number of questionnaires	Number of questionnaires returned
Local Government (A)	13	130	130	122
Local Government (B)	18	142	142	132

Local Government (C)	14	128	128	121
Total	45	400	400	375

4.8   DATA GENERATION METHODS

A method of data generation is simply a technique that the researcher used to collect empirical research data. The method of data generation reveals how researchers get their information (Johnson & Turner, 2003). This study, therefore, used three major methods of data generation to gather information and they are a questionnaire, interviews and focus group discussions. The questionnaire covers the seven areas of knowledge in the TPACK model, and technology adoption and UTAUT. TPACK will assist in understanding what knowledge Business Education teachers possess in terms of TPACK, technology adoption and diffusion theory, as well as UTAUT, assisted the researcher in understanding what types of technology Business Education teachers do or do not use in the teaching of Business Education subjects, and the factors that cause them either to use or not to use technology in their teaching of Business Education subjects. Therefore, these methods are being discussed in two phases, that is first the quantitative phase and the second the qualitative phase.

4.8.1   Quantitative Data Generation Method

 A questionnaire consisting of closed-ended questions was used in this study to collect data. Fraenkel and Wallen (2000) believe that research surveys are used when one is interested in the opinion of a large group of people about a particular topic or issue. The survey questionnaire was used because surveys are more useful in describing the characteristics of a large population (Creswell, 2012). In addition, the anonymity of the questionnaire allows respondents to answer with more candid and valid answers. To get the most accurate data, you need respondents to be as open and honest as possible with their answers. Surveys conducted anonymously provide participants with an avenue for more honest and unambiguous responses, especially if it is clearly stated that survey answers will remain completely confidential (Creswell, 2012). Hence, the use of the questionnaire was considered appropriate in this study to generate quantitative data.

4.8.1.1   *Questionnaire*

A questionnaire as a method of generating data was used in this research study. This method of generating data is widely accepted and used in research fields. Wilkinson and Birmingham (2003) argued that questionnaire as a method of data generation is the favoured tool of many researchers and can provide a cheap and effective way of collecting data in a structured and manageable form. The authors further argued that the questionnaire provides very detailed information, covering many subjects or issues and focuses on one important area. Similarly, the questionnaire can be carried out by the researcher or by any individual with limited effect on its validity and reliability (Schmidt, et al. 2009). Bauer & Gaskell, (2000), as well as Cohen et al. (2000), maintain that questionnaires facilitate the collection of numerical data that are structured and can be generalised and administered by someone besides the researcher.

Therefore, this study employed a close-ended questionnaire. The questionnaire covers the seven areas of knowledge in TPACK model, and technology adoption which will assist in understanding what knowledge Business Education teachers possess in terms of TPACK, and factors that cause teachers to use or not to use technology in their teaching of Business Education. The use of the questionnaire in collecting data for this study is important because, according to Schmidt, Baran, Thompson, Mishra, Koehler, and Shin (2009), the results of the questionnaires can usually be quickly and easily quantified by either the researcher or through the use of a software package. The questionnaire that the study used was taken from the work of Schmidt, Baran, Thompson, Mishra, Koehler and Shin, (2009). Therefore, this study surveyed 400 Business Education teachers from 45 secondary school teachers who served as participants in this study. A total of 400 questionnaires were distributed to the participants, and they were asked to keep it with them for four weeks (April to May), this was due to the number of questions they had to answer in the questionnaire. Five researcher assistants were employed to distribute and collect the questionnaires. However, out of the 400 questionnaires distributed, 375 was returned. Yet, out of the 375 questionnaires returned, 10 were uncompleted or void; hence 365 questionnaires were captured and analysed on SPSS.

This method of data generation is not without some strengths and weaknesses. Johnson and Turner (2003, p. 306) listed some of the strengths and weaknesses of the questionnaire as a method of collecting data. In terms of the strengths, the questionnaire can be designed to collect vast quantities of data from varieties of respondents. Also, questionnaires are inexpensive to administer; very limited training is required to develop them; and they can be easily and quickly

analysed once completed (Johnson & Turner, 2003; Wilkinson & Birmingham, 2003). Questionnaires allow participants adequate time to make their responses, also questions that may be embarrassing for some participants are answered in complete privacy. It can be answered by many participants simultaneously, thereby saving much time (Ganga & Maphalala, 2015 in Okeke and Wyk, 2015). Perceived anonymity by respondents is high, and there is a moderately high measurement validity for well-constructed and well-tested questions. Data analysis is easy for closed-ended items (Johnson and Turner, 2003, p. 306). Also, on the weaknesses of questionnaires as a data generation tool. Questionnaires do not provide flexibility; therefore, it is advisable to use this tool in conjunction with the interview as a means of authenticating the data (Ganga & Maphalala, 2015, in Okeke and Wyk, 2015, ed.). In addition, many people prefer to express their views verbally than in writing (Ganga & Maphalala, 2015 in Okeke and Wyk, 2015, Ed.). Also, questionnaires need validation, might have missing data or lack response to selected items (Johnson and Turner, 2003, p. 306).

4.8.1.1.1 *Development of questionnaire*

The questionnaire used in this study was guided by an extensive literature review. The questions included in the questionnaire were once eliciting the basic views of respondents towards the use of technology in the teaching of Business Education, and the different knowledge according to TPACK. The questionnaire asked questions based on TPACK knowledge. Venkatesh et al. (2003) developed their original model from an exploratory factor analysis of similar constructs taken from a large selection of previous technology acceptance theories. Their questions were taken directly from previously validated questionnaires. However, it is important to note that questions from Venkatesh et al.'s (2003) instruments were used and adapted for this study. Measures were derived to elicit the four direct determinants of the UTAUT in a teaching and learning context, performance expectancy, effort expectancy, social influence and facilitating conditions.

4.8.1.1.2 *Rating scale*

Upon developing the questionnaire for this study, a Likert scale ranging from "Strongly disagree" to "Strongly agree" was used to indicate participants' level of agreement on the factors that were important to their technology integration/adoption. Data from 365 participants were gathered to determine the influential factors perceived by the participant's technology integration/adoption into their teaching of Business Education. The participants were asked to

'ring' the appropriate column. This was prepared so as to facilitate the recording of responses on a spreadsheet that was used in the analysis of the questionnaire. Also, the questionnaire was categorised into the sections. The questionnaire included the statements that were designed to examine participants' individual beliefs in ICT, the importance attached to ICT use, solve own technical problems, assess student performance in a classroom; have sufficient knowledge about Business Education; can choose technologies that enhance the teaching approaches for a lesson; know about technology that he or she can use for understanding and doing work; can select effective teaching approaches to guide student thinking and learning in Business Education subjects; can teach lessons that appropriately combine any Business Education subject, technologies and teaching approaches. The above was important to include in the questionnaire so as to examine teachers beliefs or agreement or disagreement on the statements. Therefore, participants were requested to respond to 59 statements and indicate their responses on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree) with a statement. Harris, Mishra, and Koehler (2009) analyse present approaches to technology integration in teaching, arguing that many current methods are technocentric, often omitting sufficient consideration of the dynamic and complex relationships among content, technology, pedagogy and context. Therefore, it was essential to include content, technology, pedagogy, TPACK in the questionnaire so as to have a comprehensive understanding of technology integration in the teaching and learning of Business Education.

4.8.1.2   *Qualitative data generation methods*

4.8.1.2.1   *Focus group discussion*

To generate qualitative data for this study, focus group discussions and the face-to-face interviews were employed. According to Creswell (2012), a focus group discussion is a process of collecting data through interviews with a group of people. Anyanwu (2014) maintains that using focus group as a method of data generation is advantageous because the interaction among interviewees will likely yield the best information, especially when interviewees are similar to and cooperate with each other. Cohen, Manion and Morrison (2011) defined a focus group discussion as yielding a collective rather than an individual view. Similarly, Yin (2003, p. 25) states that focus group consists of a "small number of individuals or interviewees that are drawn together for the purpose of expressing their opinions on a specific set of questions". Focus groups are group discussions organised to explore a specific set of issues such as people's views and experiences of some specific situation (McLafferty, 2004). Furthermore, a focus

group discussion was considered vital in this study, because it encourages debate and proper engagement between the participants which also assist in data generation. Therefore, this study used a focus group discussion to collect data. Also, seven focus group discussions were conducted on different occasions with five participants in each group. Each focus group with the participants lasted for about 60 minutes. The focus group was conducted after face-to-face interviews.

Below are some sample questions that were asked during focus group discussions

- What motivates you to use or not to use technology in your teaching?
- What competencies do you have in technology?
- What support do you receive in terms of technology and pedagogical use of ICT?
- How has your school support you in terms of technology integration?

The above questions were asked to generate qualitative data for this study. The questions were asked to understand participants' motivation behind their use or lack of use of technology in their teaching of Business Education, their competencies as well as what the participants considered as the relevance of technology in the teaching and learning of Business Education. In addition, using a focus group discussion to generate qualitative data is appropriate because a focus group aims to have a collective view of the topic of interest.

The purpose of a focus group is to gather information that can perhaps not be collected easily by means of an individual interview. In doing a semi-structured interview, there is greater flexibility and freedom (Cohen, Manion and Morrison 2011). Therefore, focus group discussion is suitable as it enables the researcher to generate data that assisted in understanding the phenomenon under study as the individual respondents experienced it and thus to understand, as well, their reaction to it (Kahn, Merton, Fiske & Kendall, 1991). This implies that the content, sequence, and wordings of the interview are left for the researcher to decide but then they are carefully planned. However, the focus group discussion has some strengths and weaknesses as a method of data generation. For instance, in terms of the strengths of the focus group as a method of data generation, a focus group is useful for exploring ideas, allow good interpretive validity. Also, a focus group discussion can be used to obtain in-depth information about exactly how people think about an issue, also it allows for probing (Johnson & Turner, 2003). On the other hand, the weakness of the focus group discussion is that it is sometimes expensive to conduct, also possible reactive and investigator effects if participants

feel that they are being watched. Also, the discussion may be dominated by one or two participants. Also, focus group discussion as a method of data generation is sometimes time consuming ((Johnson & Turner, 2003).

4.8.1.2.1 *Face-to-face interview*

This study adopted face-to-face interviews as a data-generating method. The interview was used in this research study because it has an advantage over other methods of data generation. For instance, the interview allows for a greater in-depth understanding of the phenomenon under study (Cohen et al., 2011). As a method of data generation the interview is considered as one of the most valued sources of case study information (Creswell, 2012). Remler & Ryzin (2014) believe that the act of conducting a good interview is in some ways the same as participating in a good conversation, listening intently and asking questions that focus on concrete examples and feelings rather than on abstract speculations, which are not likely to provide meaningful information. Therefore, face-to-face interviews were considered to be most appropriate and consequently applied in this study.

Some scholars have tried defining a face-to-face interview. For instance, the face-to-face interview has been defined as contact between the researcher and the participant (Anyanwu, 2014; Cohen et al., 2011). Creswell (2012) defined face-to-face interviews as a data generation process in which the researcher asks questions as well as records answers from only one participant in the study at a time. De Vos et al. (2005) believe that face-to-face interviews are a process of getting to know what motivates another person. Creswell (2012) contends that face-to-face interviews are data generation methods which involve a conscious exploration of another person's interest, passion, experience, most important relationships and stories. From the discussion, it shows that a face-to-face interview is an appropriate data generating method, and it is useful when a researcher is investigating a topic that is very personal to participants. Therefore, a face-to-face interview as a data generating instrument was used in this study. Below are samples of face-to-face interview questions that were asked during the process of data generation.

- How would you define the role of technology in Business Education?
- Do you think that technology should be used daily in Business Education and why?
- Clarify your understanding of the different kinds of technology, hardware, software and use?

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- What technologies have you used and how do you facilitate technology integration throughout the Business Education curriculum?

The purpose for the above questions was to elicit in-depth information from participants, and to understand the participants' views about the role of technology in education, as well as their different understanding of kinds of technology, and how they have used or using technology in their teaching of Business Education. Anyanwu (2014) argued that the benefits of adopting face-to-face interviews as a data generation technique include the ability to gain empathy, participants' trust, and deeper understanding of responses. Therefore, this study interviewed 15 Business Education teachers who were participants of this study. The 15 participants were interviewed separately during the face-to-face interview process. The interview with each participant took place in an environment conducive to conducting a face-to-face interview. Also, each interview with a participant lasted for about 45 minutes and was audio recorded. Face-to-face interviews were used in this study, which is line with Cohen et al. (2011), which says that the aim of using face-to-face interviews as a method of data generations is to validate other methods of data generation or to go deeper into the experiences of respondents. Creswell (2012) adds that semi-structured interviews help the researcher to probe deeply into the case and generate detailed data about the case under study.

Thus, the decisions to give out 400 questionnaires, conduct seven focus group discussions and 15 face-to-face interviews were based on the following justifications. Firstly, it afforded the researcher the opportunity to use questionnaires to survey the phenomenon under study at the wider range, reach a large, geographically diverse audience and later, the researcher used both face-to-face interviews and focus group discussions to have the best insights into the phenomenon as well as having an in-depth understanding of the phenomenon (Wolff, Knodel & Sittitrai, 1993). Secondly, the survey questionnaires are less adept at capturing the kind of in-depth contextual detail that face-to-face interviews and focus group discussions can provide about the phenomenon under study (Lumadi, 2015; Cohen et al., 2011). Also, surveys "lack the flexibility of qualitative approaches to pursue particular issues in any greater depth" (Wolff, Knodel & Sittitrai, 1993, p. 119). Thirdly, face-to-face interviews and focus group discussions can never claim to be representative of a much larger inferential population that surveys obtain, because the absolute number of face-to-face interview and focus group discussions will always be small (Lumadi, 2015; Cohen et al., 2011; Wolff et al., 1993). Therefore, the number of participants and the techniques or strategies that this study employed in collecting data is

through survey questionnaire, focus group discussions, and face-to-face interviews are capable and yielded the results that serve as sources of data for both qualitative and quantitative analysis. Hence, the survey questionnaire, face-to-face interviews, and focus group discussion guidelines were designed in advance to yield independent qualitative and quantitative research perspectives on the topic investigated.

Table 4.2:   Participants' demographics

Name	Specialisation	Years of teaching experience
Mrs. AA	Commerce	25 years
MISS. IB	Accounting	21 years
Mrs. IM	Economics	13 years
MR. UA	Accounting	10 years
MISS. RM	Economics	15 years
MR. ICJ	Book-keeping/Office practice	13 years
MR. NG	Commerce	8 years
MRS. MA	Typewriting/Shorthand	16 years
MRS. IA	Business studies	13 years
MISS. IR	Accounting	16 years
MR. ACC	Accounting	22 years
MRS. SE	Economics	6 years
MRS. DD	Book-keeping/Office practice	11 years
MRS. OC	Commerce	5 years
MR. HO	Accounting	23 years

The table below indicates the data generation instruments used in the generation of data for this study.

Table 4.3:   Data generation instrument

Research questions	Questionnaire	Focus group	Interview
What technologies are being used in Business Education teaching and learning in Nigerian secondary schools?	•	•	•
What challenges are being encountered with technology integration in the teaching and learning of Business Education?	•	•	•
What factors motivate teachers in the use of technology in the teaching and learning of	•	•	•

Business Education in secondary schools in Nigeria?			
What knowledge do teachers of Business Education have in terms of TPACK in teaching and learning of Business Education?	•	•	•

4.9 DATA ANALYSIS

Data analysis is a process used in research to organise and reduce the data collected into themes by finding and sorting the information according to emerging patterns. Analysing data properly is very important for this study (Preacher & Hayes, 2004). Thus, the analysis of data for this study includes data from the questionnaire, face-to-face interviews and focus group discussions. In addition, this study employed both SPSS for analysing quantitative data, and thematic data analysis for analysing qualitative data generated for this study.

Using SPSS to analyse data in this study is essential because SPSS allows for many different types of analyses, data transformations, and forms of output (Preacher & Hayes, 2004). The SPSS package enabled the researcher to obtain statistics (descriptive numbers) needed for this study as the study is a mixed-methods research (Arkkelin, 2014). Hence, the SPSS package is important for this research because it enables the researcher to plot and present the data in histograms, and other ways (Arkkelin, 2014). Furthermore, thematic data analysis, on the other hand, will be used by the researcher by way of not merely counting explicit words or phrases, but focusing on identifying and describing both implicit and explicit ideas within the data (Braun & Clarke, 2006). Findings relating to identified themes were collected, analysed and then discussed. After collecting data using a questionnaire, the data were captured on a spreadsheet in actual numbers. This process eased the statistical representation of data in terms of percentages and graphs. The TPACK and UTAUT constructs were each operationalised in different statements/questions. In addition, data collected through questionnaire were captured on SPSS. The participants' responses were summarised under the following headings: Strongly disagree, disagree, neutral, agree and strongly agree.

4.9.1   Quantitative Data Analysis

To analysis quantitative data for this study, the researcher followed two main steps. The first step involved the researcher preparing the data to be analysed, and the second step involved the researcher conducting the actual data analysis. SPSS was used in capturing the data as well as in analysing the data. The analysis was a descriptive data analysis. Descriptive statistics help the researcher to present large amounts of data using measures of central tendency that are easily understood and appreciated (Burns, 2000). The researcher performed descriptive statistics to obtain frequency distributions and measures of central tendencies, such as the mean, median, mode and standard deviation as well as percentages for the different variables. Information was presented in frequency distribution tables showing percentages, the means, and standard deviations. This was to assist the researcher to answer the research questions in Chapter One of this study.

Additionally, before capturing the data collected for the study on SPSS, it was thoroughly cleaned and coded. The process of cleaning data for capturing involved identification of incomplete responses, and contradicting responses, identification of omissions, errors, and ambiguities in the participant's responses (Diamantopoulos & Schlegelmilch, 2000). Studies has demonstrated the importance of cleaning data before capturing, therefore, it was unavoidably important for the researcher to clean the collected data, because it helped the researcher to account for any missing values resulting from respondents not supplying those values (Creswell, 2012 cited in Alharbi 2014). After the cleaning of data, it was followed by setting up coding plan to determine the type of scores which were used in scoring the data (Gloeckner & Barrett, 2012).

The descriptive statistics were generated after the data had been cleaned and coded. The analysis of the collected data provides an understanding of the nature of the responses recorded, and enabled the researcher to detect mistakes in the coding process. The analysis also helped in providing means of presenting the analysis results in numerous ways, using tables and graphs, which eventually assisted in answering the research questions as stated in Chapter One of this study (Diamantopoulos & Schlegelmilch, 2000). In this study, descriptive statistics were performed for all the tables in Chapter Five, which is the chapter that presented quantitative analysis results. The mean, median and standard deviation, mode, as well as percentages of the responses towards the different factors examined or determined in each questionnaire table,

were distributed on tables to determine the extent to which they influence integration of technology in the teaching and learning of Business Education is secondary schools in Nigeria.

4.9.2   Qualitative Data Analysis

Qualitative data analysis involves the organisation and interpretation of research materials, for instance, focus group discussions, field notes, interview transcriptions, videos or audio recordings and documents (Remler & Van Ryzin, 2014). McMillian and Schumacher (1997) maintain that qualitative data analysis is a systematic procedure of selecting, categorising, comparing, synthesising and interpreting data in order to give proper meanings/explanations of a single phenomenon of interest. Therefore, to analyse data for this study, thematic data analysis was employed. Thematic data analysis is a qualitative data analysis method that focuses on identifying patterned meaning across a dataset (Hayes, 2013; Braun & Clarke, 2006). The main reason for using thematic data analysis is to identify patterns of meaning across a dataset that provide an answer to the research questions being addressed. Also, using thematic data analysis in qualitative research involves identifying patterns through a rigorous process of data familiarisation, data coding, and theme development and revision (Hayes, 2013). Hence, this research study employed thematic data analysis not merely by counting explicit words or phrases but to focus on identifying and describing both implicit and explicit ideas within the data (Braun & Clarke, 2006).

To analyse data for this research study, the data was first transcribed into textual form. The researcher listened to the audio recorded interviews and focus group discussions while typing. During the data analysis processes, listening to the interviews and focus group audio tapes while transcribing assisted the researcher to gain a deeper understanding of what Business Education teachers perceptions were on the integration of technology into teaching and learning of Business Education. Additionally, after transcribing the data the researcher began reading through the transcripts and checking against the recorded audio tapes to ascertain that they were the true responses of the study participants. Also, to get properly familiar with the data the researcher had to read and reread the data, and after reading through the whole data the researcher was able to acquire a sense of the entirety of the data and which allowed him a greater understanding of the data. Furthermore, during the process of data transcription and analysis, pseudonyms (for example AA, Mr. UC, FG1), were used to identify each teacher's interviews, and each focus group section. Reading the data transcripts several times was important for the researcher to immerse and to familiarise himself with data.

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The second phase moved from unstructured data to the development of ideas about what was emerging from the data (Morse & Richards, 2002). This phase involved the initial production of codes from the data and began after the researcher had read and familiarised himself with the data and therefore having ideas about what was in the data (Braun & Clarke, 2006). The next level of the analysis after compiling and organising the data was to disassemble the data through coding. Coding, in qualitative research, is defined as "the process by which raw data are gradually converted into usable data through the identification of themes, concepts, or ideas that have some connection with each other" (Casselberry & Nolen, 2018, p. 2). Furthermore, coding in qualitative data analysis involves researchers identifying similarities and differences in the data, this process of qualitative data analysis is largely inductive because it allows meaning to emerge from the data, rather than the more deductive. Similarly, coding during data analysis is important because it breaks the data down to manageable sections, and takes researchers through the transformation of raw data to higher-level insights or abstractions as the development of themes (Vaismoradi et al., 2016). Therefore, the main idea of using coding in this study was to transform data and to assign meaning to data. Merriam (2009) sees coding as the process of reading carefully through the transcribed data line-by-line and dividing it into meaningful units. This involved a process of going back and forth through the interview transcripts. In this study, open coding was used to examine the data and label the individual codes that emerged from the data. While there are different ways of undertaking open coding, for this study, the researcher employed a line-by-line analysis. This was done by examining each piece of text from the transcripts line-by-line to segment the data into units of meaning. Although, the process was time consuming but a number of codes were generated in this initial coding process. The process of coding was done manually while trying to identify key words or phrases in Business Education teachers accounts of perceptions of technology integration in teaching and learning of Business Education in secondary schools. Open coding was conducted after reading through the transcripts several times. The researcher also made use of different colours to code and to differentiate the data and to identify units of meaning that reflected ideas and views about teachers' perceptions of technology integration in the teaching and learning of Business Education (Henning, 2004). Additionally, the researcher made notes on the wide margin on the right-hand side of the page to help understand the data well. Making notes during the process of the coding was very instrumental during the analysis, notes helped the researcher to facilitate reflexivity, and provide researchers with ample opportunity to be able to remember, question, and make meaning of the data (Vaismoradi et al., 2016). Additionally, notes during data analysis helped in deepening researchers' understanding of the data and as well as the

interpretation of data, and was useful in the comparison with related codes and segments of transcriptions (Vaismoradi et al., 2016).

The codes were selected and allocated to the units of meaning depending on what the data meant to the researcher. After all data had been coded and collated, a list of the different codes identified across the data sets was developed. The third phase involved sorting and collating all the potentially relevant coded data extracts into themes (Braun & Clarke, 2006). Comparison process was carried out across the lists with the aim of suggesting plausible themes. Comparison helped in revealing the link between codes and nominate themes using researchers' intellectual judgment. This was to identify themes across the categories within each set of data. In qualitative analysis, themes are known to capture something important about the data in relation to the research question. Therefore, after reassembling the data, the codes were gathered into different themes. This process was important, because it helps in organising codes and comparing them in terms of similarities and differences, and as well as to assign a place to each cluster of codes in relation to the research question (Vaismoradi et al., 2016). During the process of organising data, units of meaning or codes that were found to be related in meaning were grouped together as categories or themes within each dataset, then codes with the same idea were joined together to construct themes. The researcher, using the coding process to divide the data into categories and themes, was informed by the TPACK model and UTAUT theory. Putting the codes into different themes was necessary to allow the researcher to begin to start focusing on interpreting what is going on within and across varied experiences, beliefs of Business Education teachers on technology integration in teaching and learning.

In this study, the researcher was continuously guided by the already identified themes related to technology integration from the literature to carefully identify themes that emerged from the focus group discussions and interviews with Business Education teachers. This meant that units were determined from long statements, and were thematised in relation to the research questions and conceptual framework. Also, concepts that seemed to relate to the themes were placed under the themes. This was also done to identify any data that might have been missed during the coding phase. This process resulted in the emergence of new and existing themes. After identifying the themes, the researcher had to consider how the categories are and addressed the critical questions of the study. The process of comparing the themes across the data was done to capture similarities, revise codes, detect negative cases and as well as to

connect codes together to explain themes (Vaismoradi et al., 2016). Therefore, the process of comparing themes led to the development of new themes which reflected Business Education teacher's views on technology integration in teaching and learning of Business Education in secondary schools. Some of the themes that emerged were renamed and others had to be collapsed into subthemes as they could not stand as dominant themes. Subthemes, unlike themes, consist of summaries and examples drawn from participants' accounts related to elements that build themes. Therefore, subthemes play a vital role in data analysis in the sense that the meaning of themes, and the quality of their capacity can be found in subthemes (Vaismoradi et al., 2016). Correspondingly, the researcher engaged in the process of crosschecking for errors, mistakes and repetition. Then after crosschecking for repetition and relationship these themes were summarised into dominating themes. All transcripts were revisited to refine the key themes and to highlight the relationship across the data sets. Thereafter, each unit of data coded according to the particular category was organised within each cluster under the broad themes.

The next stage of data analysis was the level of interpreting data. This level of data analysis is often considered as a critical stage in research process. This stage involves the researcher making logical conclusions from the data presented as themes that emerged. The main idea in interpreting the themes was to properly identify the essence of what each theme is about (Braun & Clarke, 2006). Therefore, the researcher started making proper sense of what the themes were saying. Also, using the subthemes to interact and relate to the main themes, gave a comprehensive understanding of how each theme relate to the others. This process was important as it allowed the researcher to start focusing on interpreting varied teachers' experiences, beliefs on technology integration in Business Education teaching and learning in secondary schools. These broad themes comprised teachers motivating factors to integrate technology in teaching and learning and factors affecting technology integration in teaching and learning. These themes will be presented in Chapters Six and Seven.

4.10 VALIDITY AND RELIABILITY

In mixed-methods research, validity means the ability of the researcher to draw a meaningful and accurate conclusion from all of the data in the study (Creswell, 2009). Similarly, validity also means "employing strategies that address potential issues in data collection, data analysis, and the interpretations that might compromise the merging or connect of the quantitative and qualitative strands of the study and the conclusions drawn from the combination" (Creswell

and Clark, 211, p. 239). Zohrabi (2013, p. 1) believes that using different types of "procedures for collecting data and obtaining information through different sources can augment the validity and reliability of the data and their interpretation". Studies have shown that mixed-methods researchers have various ways of boosting the validity and reliability of their study (questionnaire, face-to-face and focus group discussion) (Creswell & Clark, 2011; Creswell, 2009). Hence, the use of three different instruments in this study served the purpose of data triangulation and could as well heighten the dependability and trustworthiness of the data and their interpretations (Zohrabi, 2013).

Furthermore, the use of the questionnaire that will be adopted from the works of Schmidt, Baran, Thompson, Mishra, Koehler, and Shin, (2009); Vannatta and O'Bannon (2002), and Albirini (2004) will be used to increase the external validity or the (transferability) of the study. Also, an attempt will be made to explain in detail, the study process. In this case, the participants will be informed about the aims and the objectives of the study. In doing this, the researcher will also ensure that all procedure used are transparent and easily understandable when giving a clear description and providing evidential justification. More so, the method underpinning processes of data analysis will be clearly defined and rationale behind the choice will be made explicit. Likewise, the researcher will further ensure that the conclusions that are made will be based on supporting evidence. Finally, the researcher will endeavour to compare findings with similar studies elsewhere.

4.11   ETHICAL CONSIDERATIONS

For ethical demands, a variety of ethical considerations was relevant during data collection and during data analysis to avoid any form of harm to the participants (Terre Blanche & Durrheim, 2002). These include ensuring the respect of the following ethical principles: understanding of the purpose of the research by the participants, the right to privacy, confidentiality, anonymity, possibility for any participant to withdraw or to terminate his or her participation at any stage of the research; accessibility to information and benefits as a result of the participation (Cohen et al., 2011).

McMillan and Schumacher (2006) argued that ethical issues refer to all the precautions, steps and efforts that researchers carefully put into practice to protect the research participants while interacting with them for data production. The credible research design involves the selection of participants, effective research strategies and ensuring that all of the steps of the research adhere to research ethics. During the planning and implementation of this research project due

consideration was given to ethical issues relating to using Business Education teachers as part of the data collection method. Seeking consent was necessary as it protects both the teachers and researcher from any problems that may arise and provides proof of the authenticity of the data collected and the processes used (Cohen et al., 2000).

To adhere to the above principles, the researcher first applied for an ethical clearance to conduct this study from the UKZN ethical committee where he is registered as a student, Secondly, in terms of gaining access to the chosen state, permission was obtained from the Imo State Ministry of Education, Nigeria and the selected secondary school as gatekeepers. Thirdly, at the beginning of the study, the participants were assured of their anonymity and the confidentiality of our interactions throughout the research process, as well as in the thesis and the publications that are likely to follow. Fourthly, informed consent was signed by the participants based on their understanding of the purpose of the study, and their willingness to participate in it. Fifthly, the anonymity of the participant was maintained during the writing of the thesis using pseudonyms. Finally, interviews were audio recorded with the participant's permission and all of them were assured that the contents of our conversations, whether recorded or not, would be used solely for the study and destroyed afterwards.

4.12   CONCLUSION

This chapter presented and explained the different process that led to the generation of data. The chapter also provides discussions on the design of the research, methodological approach and the paradigm, and as well as the context, data generation process, ethical considerations, sampling strategies and techniques were used in analysing and interpreting data. Also, focus group discussion, face-to-face interviews and questionnaire were thoroughly discussed. The next chapter will present an analysis of the study.

CHAPTER FIVE:
BUSINESS EDUCATION TEACHERS' TECHNOLOGICAL KNOWLEDGE

5.1   INTRODUCTION

The previous chapter presented the research design and methodology of the study. This chapter presents the quantitative findings of Business Education teacher's TK. Three subthemes emerged. The first subtheme focuses on the analysis of selected technologies in Business Education. The second subtheme focuses on teachers' motivating factors to integrate technology in Business Education. The third subtheme focuses on analysis of teacher's knowledge in terms of TPACK. The data presented in this chapter is shown in the form of descriptive statistics.

SECTION A

5.2   ANALYSIS OF SELECTED TECHNOLOGIES USED IN BUSINESS EDUCATION TEACHING AND LEARNING

The results of the survey conducted on the analysis of technologies integrated into the teaching and learning of Business Education are presented in this section. In this study, technology is categorised into tools, applications and Web applications. Additionally, this present study surveyed the frequency of use of each of the technologies, as well as the level of proficiency of each technology in the teaching of Business Education subjects. Hence, under this section data on the frequency of use and the level of proficiency of each technology in the teaching of Business Education subjects are presented. The results consist of descriptive statistics that will enable the researcher to describe and compare the main features of quantitative data collected (Saunders, Lewis & Thornhill, 2009).

Therefore, descriptive statistics on technology integration mainly consisted of different technologies used, and the frequency as well as the proficiency level that Business Education teachers possess. The descriptive statistics were presented in a simple way to give an overall impression of the data analysis on technology integration in the teaching and learning of Business Education in secondary schools. Additionally, the results on the frequency and proficiency levels of technologies used in Business Education are represented in table form.

5.2.1 Frequency Level Analysis of Technologies

This section presents data on the frequency of use of each technology in the teaching and learning of Business Education subjects. The respondents were asked to indicate the frequency as follows: every day, once-twice a week, monthly and none. In this section, the analysis of technologies is done in three different categories. The first category of the analysis is about technology tools used and the level of frequency, the second category is about the technology applications used and their frequency of use, and the third category is about the web applications and their frequency of use. The results on the frequency of technologies used in Business Education are presented in tables to enhance easy understanding of the results.

5.2.1.1 The frequency level of the use of technology tools

This section presents the results of the analysis of frequency of the technology tools used in the teaching and learning of Business Education. Tools that were selected are computer, digital cameras; Scanner; LCD Panel or data projector.

Table 5.1:   The frequency level of the use of technology tools

	Computer	Digital Camera	Scanner	Data Projector
None	65.1	61.6	84.1	89.2
Every day	3.4	4.5	3.4	1.7
Once-twice a week	19.6	16.8	5.4	4.0
Monthly	11.9	17.1	7.1	5.1

Table 5.1 illustrates that more than 60% of the respondents indicated low frequency of use in all the four technology tools investigated. In particular, data projector has the highest percentage of not used with (89.2 %) of the respondents indicating that they have not used a data projector to teach. Interesting outcomes from the table illustrate that the majority of the respondents do not use any of the selected technology tools in their teaching. Maybe this could explain the type of teachers teaching Business Education in Nigerian secondary schools. Table

5.1 above, shows 65.1% indicated that they do not use a computer in their teaching of Business Education subjects, 89.2% responded that they do not use a data projector, while 84.1% and 61.6% also indicated not using a scanner and digital camera.

However, the information portrayed in Table 5.1 shows that 19.6% and 16.8% of the respondents indicated using a computer and digital cameras once or twice a week respectively in their teaching. That might be the case even though it cannot be ascertained what it is used for, because technology can be used for many things other than the teaching of Business Education. From the analysis in Table 5.1, the result evidently shows that Business Education teachers are not integrating any of the selected technology tools in their teaching. This is not good for the field of Business Education, because integrating technology could assist both the teachers and learners in their study of Business Education.

5.2.1.2 *Frequency analysis of use of technology applications*

This section presents the results of the analysis of selected technology applications used in the teaching and learning of Business Education. The technology applications are installed on the computer which enables the user to manage his/her day-to-day work activities in different ways. The applications included in this study are commonly used in computer applications for integration purposes. The results will be presented in tables to enhance easy understanding of the results

Table 5.2:   The analysis results of use of technology applications

	Word Processing	Database	Software (GIS, CAD, PASTEL)	Spread Sheet	Graphics program	Power Point
None	93.5	67.9	69.3	66.8	77.8	63
Every day	1.1	8.2	6.5	5.7	7.4	7.1
Once-twice a week	3.4	13.6	9.9	11.4	7.1	9.7
Monthly	2.0	10.3	14.3	16.1	7.7	20.2
Total	100	100.0	100.0	100.0	100.0	100.0

Table 5.2 illustrates that almost all of the applications are never used in the teaching of Business Education subjects. The percentage of the respondents who indicated that they never used these applications was more than 60% in all the six applications investigated. Word Processing alone had the highest percentage of respondents who never used it (93.5%), while only 1.1% percent of the respondents indicated using it every day as shown in the table above. The results are in-keeping with Table 5.1 since a large majority indicated that they did not use a computer for teaching and learning.

5.2.1.3   *Frequency analysis of use of web applications*

This section presents the results of the analysis of the frequency of use of selected web applications namely, website development, electronic references, discussion groups, email, internet (www), and Assistive Technologies in the teaching of Business Education in secondary schools.

Table 5.3:   The analysis results of web applications

	Website development	Electronic references	Discussion groups	Email	Internet (www)	Assistive technologies
None	79.8	75.0	70.2	29.5	29.5	67.6
Every day	7.1	6.5	8.8	31.0	33.8	8.8
Once-twice a week	5.4	9.7	10.8	29.0	29.5	13.9
Monthly	7.7	8.8	10.2	10.5	7.2	9.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 5.3 illustrates that some of the web applications are never used in the teaching of Business Education subjects in Nigerian secondary schools. The percentage of the respondents who indicated that they have not used these web applications was more than 65% in four of the six web applications investigated. From Table 5.3 Website development alone had the highest percentage of respondents who have never used it (79.8%), however, interesting to note is that only 7.1% percent of the respondents indicated using it every day.

5.3 CONCLUDING REMARKS

The results from the analysis of the frequency of use of selected technologies show that technologies are not being used in the teaching and learning of Business Education. This is evident from the analysis Tables 5.1, 5.2; and 5.3, with the majority of the respondents indicating none with a high percentage for most of the technologies. The implication of the high percentages of "none" is that majority of the teachers do not integrate technology into their teaching of Business Education subjects. From the results above, it could be concluded that the frequency of technology use in the Nigerian secondary schools is very low.

5.3.1 Teachers' Level of Technology Use Proficiency

This section investigates the respondent's proficiency in using selected technologies. The selected technologies are three categories which are tools, applications and web applications. The table below shows the analysis of the selected technologies. The proficiency scale (High, Moderate, Little, None) was intended to investigate the participant's level of proficiency in the use of the different technologies.

5.3.1.1 Proficiency analysis of use of technology tools

This section presents the results of the analysis of teacher's proficiency of the technology tools.. Tools that were selected are computer, digital cameras; Scanner; LCD Panel or data projector.

Table 5.4: **Analysis results of the proficiency level with respect to technology tools**

	Computer	Digital camera	Scanner	Data Projector
None	46.0	29.5	52.5	66.5
High	11.6	7.7	7.1	4.8
Moderate	16	42.9	23.9	12.2
Little	26.4	19.9	16.5	16.5
Total	100.0	100.0	100.0	100.0

Table 5.4 above, shows that more than 50% of the respondents indicated poor proficiency in three of the five tools investigated. In particular, 66.5% of the respondents responded that they do not have proficiency in using data projector. However, Table 5.4 illustrates relative lower percentages for computer and digital camera. The results indicate that 42.9% of the respondents agree they have moderate skill in the use of digital camera, and 26.4% indicated little proficiency for computer and 23.9% indicated moderate proficiency in the use of a scanner.

5.3.1.2   *Level of proficiency in using technology applications*

This section presents the results of the analysis of teacher's proficiency levels of technology applications used in the teaching and learning of Business Education. Technology applications that were selected and investigated are Word Processing, Database, Spreadsheet, Graphics Program, PowerPoint, and software (e.g. GIS, CAD, PASTEL).

Table 5.5:   Analysis results of the proficiency level when using technology applications

	Word Processing	Database	Spreadsheet	Graphics program	PowerPoint	Software (e.g. GIS, Cad, Pastel)
None	57.7	63.4	57.7	64.2	69.0	57.1
High	10.5	11.6	10.8	5.1	5.7	4.3
Moderate	10.2	14.5	15.6	10.2	8.2	12.2
Little	21.6	10.5	15.9	20.5	17.1	26.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 5.5 illustrates that more than 50% of the respondents indicated poor proficiency in all the five applications investigated. In particular, PowerPoint has the highest percentage of none-proficiency with (69.0%) of the respondents indicating they had no proficiency in using PowerPoint to teach. Also, 64.2% of the respondents reported that they do not have the knowledge to use Graphics programs, while 63.4% of the respondents indicated lack of knowledge to integrate database. Additionally, the table reveals that 57.7%, of the teachers

perceive themselves not competent in Word Processing. Also, 57.1%, and 57.7%, of the participants indicate lack of knowledge to use applications such as spreadsheet, and software (e.g. GIS, CAD, PASTEL), respectively. The implication of the above results is that; if teachers perceive themselves not competent in using word processing which is considered among the simplest technology in teaching and learning then it means that they will not get the learners to engage with word processing for assignment and any class-related activity which has to do with word processing.

5.3.1.3   Level of Proficiency analysis on use of web applications

This section presents the results of the analysis of teacher's proficiency of the technology applications used in the teaching and learning of Business Education. Applications that were selected are Website Development, Electronic References, Discussion Groups, Email, Internet and Assistive Technologies.

Table 5.6:   **Analysis results of proficiency level of web applications**

	Website development	Electronic references	Discussion groups	Email	Internet (www)	Assistive technologies
None	77.0	71.3	32.1	18.5	41.2	69.3
High	1.7	6.3	41.8	54.3	26.1	10.8
Moderate	9.7	11.3	10.8	17.5	16.2	7.7
Little	11.6	11.1	15.3	9.7	16.5	12.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 5.6 shows that among the web applications investigated, more than 65% of the respondents indicated no proficiency in three of the six web applications investigated. Table 5.6 shows that among the Web applications investigated, the majority of the respondents indicated none for websites development (77.0%), (71.3%) for electronic references, and (69.3%) for Assistive Technologies. On the other hand, some of the teachers perceive themselves competent in the use of discussion groups with 41.8%, email 54.3%; and internet 26.1%. Table 5.6 reflects that the number of teachers who did not have the proficiency to use

any of the Web technologies are higher than those who did have some proficiency. Importantly, it is not clear if those who indicated competence in the use of some of the technologies are actually using the technologies for teaching and learning purposes. This is because these technologies can be used in other areas or activities apart from teaching and learning

5.3.2   Concluding Remarks

This section investigated the level of proficiency in the use of selected technology tools, applications and Web applications in the teaching and learning of Business Education. The responses indicated that the majority of the Web technologies are not integrated into the teaching of Business Education. The results also reveal that some of the respondents are using the technologies. However, it is not clear what they use the technologies for because most technologies can be used for various purposes that are not related to education. Rogers (1995) stated that technology plays many roles in determining the level of acceptance and adoption of technology integration in any community. Hence, the response of the respondents illustrates that most of the teachers do not integrate technology in their classrooms teaching. The results from the frequency analysis of selected technologies indicate that the level of technology use in the teaching and learning of Business Education is very low. Similarly, the result from the proficiency analysis also revealed that the majority of the teachers lack the skills to integrate the technologies into their teaching activities, which also signified low proficiency. Therefore, the results from frequency and proficiency analysis demonstrate various challenges facing technology integration in most schools. The outcome could be the reason most schools are not using technologies to teach. The results from the analysis show the need for more training to be organised for teachers on how to integrate technology into teaching and learning activities, as well as provide the teachers with the necessary support to ensure that technology integration is fully implemented in the classroom. Moreover, the results of the analysis imply that many factors are behind teacher's non-use of technology in their teaching of Business Education in the Nigerian secondary schools. Arguably, it is either the teachers do not have access to the necessary technologies that made them not to use technology in their teaching, or there are technologies available but the teachers do not have the knowledge to use them. Or perhaps, the teachers need training on how to use technology but such training is not available to them, or other factors such as lack of constant electricity supply to schools.

5.4   TEACHER'S MOTIVATING FACTORS TO INTEGRATE TECHNOLOGY IN BUSINESS EDUCATION

This section investigates Business Education teachers' motivation toward technology integration into teaching and learning activities in secondary schools using UTAUT theory. The UTAUT is considered generally as an attempt to improve the different information system models on technology adoption. The model offers great opportunity to enhance understanding of user acceptance of a technology. Therefore, it is important to state here that the constructs that were common to the UTAUT and other models were extracted and used for this present study.

Venkatesh et al. (2003) listed seven constructs which appeared to be relevant in determining the intention of usage in one or more of the individual models examined. Talking about the constructs, Venkatesh et al. (2003) stated that four of the constructs (performance expectancy, effort expectancy, social influence and facilitating conditions), will play a major role in determining user acceptance and usage behavior. The questionnaire operationalised each of the four constructs for user acceptance and user behavior, together with different statements that the researcher used to measure performance expectancy, effort expectancy, social influence and facilitating conditions. All of the questions included in the questionnaire were answered on a Likert scale (Strongly agree, Agree, Neutral, Disagree, Strongly Disagree). Data from the questionnaire were captured on SPSS and the analysis of the results for each of the four UTAUT constructs are presented below:

5.4.1   Performance Expectancy

This section is focused on investigating the degree to which an individual believes that using technology will help him or her to attain gains in job performance. Performance expectancy is defined as the degree to which an individual believes that using technology will help him or her to attain gains in job performance (Venkatesh et al., 2003). The relative advantage construct from DOI theory pertains to performance expectancy. Performance expectancy was tested using the following statements: (1) Computers can enhance learners' learning. (2) Computers would motivate learners to do more study. (3) Using computer technology in the classroom will make the subject matter more interesting. (4) Computer use fits well with my curriculum goals. The table below indicates the respondents' responses to performance expectancy. The

following variables were used to indicate their responses: Enhance Learning, Motivate, More Interesting and Curriculum Goals.

Table 5.7:   Analysis of performance expectancy

	ENHANCE LEARNING	MOTIVATE	MORE INTERESTING	CURRICULUM GOALS
Strongly disagree	3.7	3.7	3.1	2.0
Disagree	8.8	8.8	4.5	8.2
Neutral	2.0	2.8	9.4	6.8
Agree	5.7	6.5	6.5	1.4
Strongly agree	79.8	78.1	76.4	81.5
Total	100.0	100.0	100.0	100.0

Table 5.7 illustrates the results of the analysis of performance expectancy. In enhanced learning, the study tries to investigate the degree to which the respondents agree that technology can enhance their learners' learning. Table 5.7 shows that the respondents' degree of agreement that using technology will enhance the learners learning is positive with 79.8%. Interestingly, more than 75% of the respondents strongly agree that using technology in the classroom will enhance the learners learning. Among the four constructs investigated, curriculum goals, in particular, has the highest percentage of strongly agreed with (81.5 %) of the respondents indicating that technology use fits well into their curriculum goals. The result also indicates that 78.1% of the respondents indicated strongly agreed for motivate, then 76.4 for more interesting. The results from the analysis could be indicating that the respondents strongly agree that technology could be an added advantage to effective curriculum delivery. Also, combining the results of the four constructs gives the mean, median, mode and standard deviation of performance expectance below:

Table 5.8:   **Summary of performance expectancy statistical results**

Mean	Median	Mode	Std. Deviation
4.79	5.00	5	.676

Therefore, performance expectancy, which means the expected benefits gained by using technology, had a significant positive effect on the perceived intention to use technology in their teaching and learning of Business Education.

5.4.2   Effort Expectancy

This section investigates the participant's responses on the degree of ease of technology use. Effort expectancy refers to "the degree of ease associated with the use of the system" (Venkatesh et al., 2003, p. 450). In the construct of effort expectancy, Venkatesh et al. (2003) netted three other constructs that are from other models into this concept of effort expectancy. The three concepts include the perceived ease of use, complexity and ease of use. The perceived ease of use is a concept that was taken from the Technology Acceptance Model (Davis, 1986), the concept refers to the idea of technology user that using the new technology will be effortless. Also, Complexity to be understood in this model as the difficulty to use a system, as perceived by the users. Therefore, it can be referred to as the complexity of the model of personal computer usage (MPCU) (Thompson et al., 1991). To analyse the participant's responses, the following variables were used: Efficient, Save time, Enjoyable and Real advantages.

Table 5.9:   **Analysis of effort expectancy**

	Efficient	Save time	Enjoyable	Real advantage
Strongly disagree	4.8	5.1	4.3	4.8
Disagree	2.8	6.5	1.7	3.1
Neutral	7.4	2.6	2.3	6.5

Agree	3.7	2.3	6.8	7.1
Strongly agree	81.3	83.5	84.9	78.4
Total	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	100.0

Table 5.9 gives the results of the analysis on effort expectancy and indicates that the majority of the respondents responded positively. From the table, the result of the analysis shows that more than 75% of the respondents indicated that using technology is innovative and effortless in teaching and learning. In particular, "Enjoyable" receives the highest percentage (84.9%) which shows the respondents' degree of agreement that using technology is enjoyable. Also, 81.3% of the respondents indicated that using technology is an efficient way to teach, while 83.5% perceive that using technology in the teaching and learning saves time, additionally, 78.4% of the teachers responded that technology offers a real advantage over other methods of teaching Business Education subjects.

The results of the analysis on effort expectancy appear to indicate that the respondents tend to agree that the integration of technology will make the teaching of Business Education subjects easier and make learning more flexible for the students to learn. Additionally, the respondents tend to strongly agree that the technologies are easy to use. The results also might be indicating that the participants tended to believe that the integration of technology in the teaching and learning activities offers good opportunity in getting the job done fast and effective than the traditional methods of instruction. The result could also be an indication that the teachers are aware that one can use computers to keep track of learners' attendance, assessment scores, creating schemes of work and syllabus and as well as for creating websites.

Furthermore, combining the results of the four constructs of effort expectancy gives the mean, median, mode and standard deviation results below:

Table 5.10:   Summary of effort expectancy statistical results

Mean	Median	Mode	Std. Deviation
4.87	5.00	5	.422

The results from the four categories appeared to show teachers' perceptions of effort expectancy. The results imply that the teachers perceive the use of technology in teaching and learning to be an efficient way to do work as well as being enjoyable. Teachers consider technology integration as a perfect way of saving time, and also believe that technology use offers a real advantage over any other meaning of teaching and learning. The results could be an indication that effort expectancy influences teacher's adoption and use of technology in the teaching and learning.

5.4.3   Facilitating condition

Facilitating condition is referred to as the degree to which an individual believes that an organisation and technical infrastructure exists to support the use of the system (Venkatesh et al., 2003). It is evident that the compatibility construct from DOI is actually blended in the construct of facilitating condition. In this section, the focus is to investigate the degree to which an individual (respondents) believe that an organisational and technical infrastructure, training support, development program exists to support the use of the system (technology integration). To analyse the data in this section, the following variables were used Place to go, Institutional support, Technical infrastructure, Solve technical problems.

Table 5.11:   Analysis of facilitating condition

	Place to go	Institutional support	Technical infrastructure	Solve Technical problems
Strongly disagree	67.3	86.4	86.9	81.3

Disagree	11.1	10.2	10.2	12.5
Neutral	0	2.0	1.4	2.3
Agree	9.1	1.4	1.4	4.0
Strongly agree	12.5	0	0	0
Total	100	100	100	100.0

Table 5.11 presents results of the analysis of facilitating conditions. The construct "place to go" investigates the degree the respondents agree that they have a place to go if they need to ask questions about technology. Table 5.11 shows that 67.3% of teachers strongly disagree that they have a place to go within their school if they need information about technology integration. Also, 86.4% of the respondents strongly disagree that they have institutional support to enable them use technology in their teaching. The result further indicates that majority of the respondents strongly disagree that technical infrastructure exists to enable technology integration in their schools with 86.9%. Meanwhile, 81.3% reveal that they do not have knowledge to solve their own technical problems. Furthermore, combining the results of the four constructs of facilitating conditions together gives the mean, median, mode and standard deviation results below:

Table 5.12:   Summary of facilitating condition statistical results

Mean	Median	Mode	Std. Deviation
1.60	1.50	1	.741

The results show that majority of the teachers perceive that there is lack of facilitating conditions in the schools that could enable technology integration. The results could be indicating challenges that prohibits integration of technology in schools. The results could be revealing the reasons Business Education teachers are not using technology to teach. The analysis result on facilitating condition is not good news to the Nigerian secondary education in terms of technology integration.

5.4.4   Social influence

Social influence is among the direct determinant of the behavioural intention to use a technique or technology (Venkatesh et al., 2003). Social influence, according to the UTAUT is "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al., 2003, p. 451). Social influence embodied three other concepts (subjective norm, social factors and image). These concepts refer to the belief that the social environment has a significant influence on the way people act (Venkatesh et al., 2003). Therefore, this section focuses on investigating the degree to which the respondents perceive that important others believe he or she should use the new system (integrate technology in teaching). To analyse the participant's responses, the following variables were used learning tools, Computers earns respect, Privileges.

Table 5.13:   Analysis of the social influence

	Learning tools	Computers earn respect	Privileges
Strongly disagree	4.8	2.3	9.4
Disagree	3.7	6.8	3.7
Neutral	8.5	0.9	13.4
Agree	11.1	8.5	7.4
Strongly agree	71.9	81.5	66.2
Total	100.0	100.0	100.0

Table 5.13 illustrates the results of the analysis of social influence. The construct "learning tools" focuses on investigating the respondent's degree of agreement that computers have proved to be effective learning tools worldwide. From Table 5.13, the results indicate that 71.9% of the respondents strongly agree that technologies have proven to be an effective teaching and learning tool. Also, the construct "Computers Earn Respect" investigates the degree of the respondent's agreement that knowing about computers earns one the respect of others. The table shows that the highest number of respondents (81.5%) strongly agree that

computer knowledge earns one respect. Furthermore, the construct "Privileges" focus is on investigating the degree to which the user agrees that people who are skilled in computers have privileges not available to others. The result shows that 66.2% of the participants strongly agree that if one is skilled in computer use he or she has privileges not available to others who do not have such skill.

Additionally, combining the results of three constructs gives the mean, median, mode and standard deviation results below.

Table 5.14:   Summary of social influence statistical results

Mean	Median	Mode	Std. Deviation
4.49	5.00	5	.750

The results above indicate that teachers perceive that computers have proved to be effective learning tools worldwide, and also the belief that knowing about computers earns one the respect of others, the teachers have the perception that people who are skilled in computers have privileges not available to others. In addition, social influence is referred to as a direct determinant of behavioural intention which is represented as an image in DOI. In DOI model, image is described as "the degree to which use of an innovation is understood to enhance one's image or status in one's social system" (Moore & Benbasat, 1991, p. 195). Based on that belief, researchers (Moore & Benbasat, 1991; Venkatesh & Davis, 2000) argued that social influence is important in shaping personal intention to use new technology (Moore & Benbasat, 1991; Venkatesh & Davis, 2000).

5.5   CONCLUDING REMARKS

The section reflects the perceptions of Business Education teachers towards the integration of technology in teaching and learning of Business Education. The respondents' perception indicated that the school, students, teachers and society would benefit from technology integration in the teaching and learning. The statistical analysis results show that a majority of the respondents are of the opinion that technology integration will benefit them both in their teaching and in general, and will motivate learners to study. The reason for their agreement could be because they understand that the integration of technology has the potential to widen the sphere of educational information, making it easy to access information anytime and

everywhere (Anyanwu, 2014). Therefore, a high number of the respondents were positive that using technology in the classroom would make the subject matter more interesting.

Table 5.15:   Distribution of overall UTAUT constructs scores

	PE	EF	SI	FC
Mean	4.79	4.87	4.49	1.60
Median	5.00	5.00	5.00	1.50
Mode	5	5	5	1
Std. Deviation	.676	.422	.750	.741

Performance expectancy (PE), Effort expectancy (EF), Social influence (SI), Facilitating conditions (FC)

However, the results also reveal that the majority of the teachers reported lack of facilitating conditions to enable technology integration in almost all the schools. This implies that although the teachers perceive using technology to teach as easy and fun, and that it enables learners to learn, that could remain only a dream if there are lack of facilitating conditions to encourage technology integration. For instance, if the teachers and learners do not have access to technologies, constant electricity, computer laboratory, development programmes, technology seminars/workshops, technicians to assist them in technology use, then the integration of technology in the teaching and learning of Business Education will not be realisable.

SECTION C

5.6   ANALYSIS OF TEACHERS' KNOWLEDGE IN TERMS OF TPACK

TPACK, as stated earlier in this study, is a model for teachers as they begin to use digital tools and strategies to support teaching and learning. The model is designed around the idea that content (what to teach) and pedagogy (how to teach) must be the basis for any technology that a teacher plans to use in their classroom to enhance learning. Hence, this section presents data on teachers' TPACK. The respondents were asked to indicate their level of knowledge in terms of TPACK as follows: Strongly Disagreed, Disagreed, Neutral, Agreed and Strongly Agreed. In this section, the analysis of teacher's TPACK knowledge is done in seven different categories. The first category of the analysis is about teacher's TK. The second category of the

analysis is about teacher's PK. The third category of the analysis is about teacher's CK. The fourth category of the analysis is about teacher's PCK. The fifth category of the analysis is about teacher's TPK. The sixth category of the analysis is about teacher's TCK. The seventh category of the analysis is about teacher's TPACK. The results on the analysis of teacher's knowledge in terms of TPACK are presented in tables to enhance easy understanding of the results.

5.6.1   Technological Knowledge of Teachers

Technology knowledge requires a person's understanding of information technology to be deeper to apply it productively at work and in their everyday lives. The knowledge should be able to assist him/her to recognise when information technology can assist or impede the achievement of a goal and to continually adapt to changes in information technology (Koehler & Mishra, 2009; National Research Council, NRC, 1999). Hence, this section explores the respondent's TK skill in the teaching and learning activities.

Table 5.16: **Analysis of technological knowledge of teachers**

Scale	Percentage				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I know how to solve my own technical problems.	80.4	8.0	3.4	3.4	.3
I can learn technology easily.	69.3	5.7	1.1	19.3	4.3
I keep up with important news about technologies.	79.5	8.8	2.0	6.0	3.7
I frequently play around the technology	75.3	12.5	2.3	9.4	.6
I know about a lot of different technologies.	80.7	9.0	2.3	8.0	-

I have the technical skills I need to use technology.	77.6	9.7	3.1	8.2	1.4
I know about a basic component of the computer.	74.7	4.0	1.1	16.8	3.4
I know how to use a word processing program.	68.2	6.8	3.7	17.0	4.3
I know how to use a spreadsheet.	75.3	8.8	6.0	9.1	.9
I know how to use presentation program.	72.4	11.9	2.6	11.9	1.1
I know how to use a printer, scanner, projector and digital camera.	42.0	11.4	4.5	30.1	11.9
I can save data in digital media.	48.3	11.4	7.4	29.5	3.4
I use internet as communication media.	57.7	6.5	3.1	21.3	11.4
I use internet as my learning/information source.	75.6	7.7	2.0	13.1	1.7

Table 5.16 illustrates that most of the participants indicate that they do not have knowledge about most of the technology or technology skills presented. The percentage of the respondents who indicated that they never used these applications was more than 55% in 12 out of 14 statements investigated. In particular, 80.7% of the respondents indicate that they do not know

about a lot of different technologies. Also, the table reveals that 80.4% of the respondents indicated strong disagreement on the statement "I know how to solve my own technical problems". Additionally, 77.6% of the respondents reveal that they do not have the technical skills needed to use technology. On the other hand, putting together the results of the different statements on TK gives the results of mean, median, mode and standard deviation below:

Table 5.17:   Summary of statistical results for technological knowledge of teachers

Mean	Median	Mode	Std. Deviation
1.73	1.68	1	.479

The result emphasised the perception of a majority of Business Education teachers in Nigerian secondary schools. From Table 5.16, the teachers perceive that they lack the necessary technology knowledge needed to integrate technology in the classrooms. According to Koehler and Mishra (2009), this body of knowledge TK requires a deeper, more essential understanding and mastery of technology for information processing, communication and problem solving than does the traditional definition of computer literacy. Therefore, the above results show that Business Education teachers perceive that they lack TK to integrate technology in their teaching, which implies that they lack essential understanding and mastery of technology for information processing, communication and problem solving.

5.6.2   Pedagogical knowledge of teachers

This section is focused on the analysis of teacher's PK which is a knowledge about how learners learn, teaching approaches, methods of assessment and knowledge of different theories about learning (Harris, Mishra & Koehler, 2009; Shulman, 1986). Additionally, PK considered as a deep knowledge about the processes and practices of teaching and learning, encompassing educational purposes, goals, values, strategies, and more (Koehler et al., 2007; Shulman, 1986).

Table 5.18: **Analysis of pedagogical knowledge of teachers**

Scale	Percentages (PK)				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I know how to assess student performance in a classroom.	2.0	2.3	1.4	33.5	60.8
I can adapt my teaching based-upon what students currently understand or do not understand.	2.0	4.0	1.4	28.1	64.5
I can adapt my teaching style to different learners.	1.4	5.4	3.7	25.9	63.6
I can assess student learning in multiple ways.	.3	6.5	6.5	30.7	56.0
I can use wide range of teaching approaches in classroom setting.	2.0	4.8	10.5	21.9	60.8
I am familiar with common student understandings and misconceptions.	2.8	4.3	10.8	29.0	53.1
I know how to organise and maintain classroom management.	17	1.7	1.1	31.0	64.5

Table 5.18 shows that more than 50% of the respondents indicated strong PK in all the constructs investigated. Especially, statements "I can adapt my teaching based-upon what students currently understand or do not understand" and "I know how to organise and maintain classroom management" have the highest percentage of strongly agree with 64.5 % of the respondents indicating strongly. The analysis results in Table 5.18, show that a high percentage of teachers possess PK to teach Business Education. Also, putting the results of the statements together give the mean, median, mode and standard deviation results below.

Table 5.19:   Summary of statistical results for pedagogical knowledge of teachers

Mean	Median	Mode	Std. Deviation
4.42	4.79	5	.743

The above result indicates that teachers perceive themselves as possessing PK, a basic form of knowledge that applies to student learning, classroom management, instructional planning and implementation and student assessment. The implication of the results is that Business Education teachers possess deep PK that enables them to understand how students construct knowledge and acquire skills in differentiated ways, and as well as how they develop habits of mind and dispositions towards learning.

5.6.3   Content knowledge of teachers

CK is a body of knowledge concerned with the subject area which teacher teaches (Koehler et al., 2007). The focus of this body of knowledge is on what teachers teach which includes terms, theories, ideas, constructs, and applications specific to a content area (Sahin, 2011; Margerum-Leys & Marx, 2002).

Table 5.20:   Analysis of content knowledge of teachers

	Percentage				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I have sufficient knowledge of Economics/ Accounting/ Commerce/ business studies/ Business management.	2.8	13.1	7.4	24.1	52.6
I have various ways and strategies for developing my understanding of Economics/ Accounting/ Commerce /Business studies/ Business management.	1.4	13.1	8.8	21.0	55.7
I keep developing my knowledge repertoire in Economics/ Accounting/ Commerce/ business studies/ Business management.	1.4	9.4	4.8	29.0	55.4

Table 5.20 shows that more than 50% of the respondents indicated having sound CK of Business Education in all the constructs investigated. From the analysis result, it could be indicating that Business Education teachers possess enough CK required to teach Business Education subjects. Also, the result is an indication of a teacher's sound knowledge of their subject areas. This emphasised the fact that a majority of the teachers had CK of the subjects they teach, and they keep developing the content with new information about their subject area.

Table 5.21:   Summary of statistical results for content knowledge of teachers

Mean	Median	Mode	Std. Deviation
4.18	5.00	5	1.016

From the above results, it is evident that Business Education teachers possess CK of Business Education. Koehler et al., (2007) stated that CK is a body of knowledge mainly concerned about the subject area a teacher instructs. Basically, as a body of knowledge, CK includes terms, theories, ideas, constructs, and applications, organisational frameworks, methods of evidence and proof, as well as established practices and approaches towards developing such knowledge in a particular discipline (Sahin, 2011).

5.6.4   Pedagogical Content Knowledge of Teachers

PCK deals with the awareness of students' prior knowledge, alternative teaching strategies in a discipline and common content-related misconceptions (Koehler et al., 2007). PCK is concerned with how to forge links and connections among different content-based ideas, and the flexibility that comes from exploring alternative ways of looking at the same idea or problem, and more (Koehler et al., 2007).

Table 5.22:   Analysis of pedagogical content knowledge of teachers

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I can select effective teaching approaches to guide student thinking and learning in Economics/ Accounting/ business studies/ Commerce/ Business management.	.9	4.0	10.8	29.8	54.5
I make my own lesson plan.	1.1	3.4	2.6	30.1	62.8
I can make a difficult lesson easier for students to understand.	1.1	4.3	7.1	22.2	65.3
I make questions on my own to measure my students' understanding of the lesson.	.9	2.0	7.4	25.6	64.2

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I can select effective teaching approaches to guide student thinking and learning in Economics/ Accounting/ business studies/ Commerce/ Business management.	.9	4.0	10.8	29.8	54.5
I make my own lesson plan.	1.1	3.4	2.6	30.1	62.8
I can make a difficult lesson easier for students to understand.	1.1	4.3	7.1	22.2	65.3
I make questions on my own to measure my students' understanding of the lesson.	.9	2.0	7.4	25.6	64.2

As shown in Table 5.22, more than 50% of the respondents have PCK required in the teaching and learning of Business Education. The result of the four constructs investigated could indicate that Business Education teachers possess enough PCK required to teach Business Education subjects. In particular, more than 60% of the respondents claim that they can make a difficult lesson easier for students to understand. Table 5.22 illustrates that majority of Business Education teachers possess adequate PCK to teach Business Education subjects in secondary schools in Nigeria. The mean, median, mode and standard deviation results below illustrate that Business Education teachers view themselves as competent in PCK.

Table 5.23:   Summary of statistical results for pedagogical content knowledge of teachers

Mean	Median	Mode	Std. Deviation
4.45	4.75	5	.649

According to Schulman (1987), PCK is the idea of knowledge of pedagogy that is applicable to the teaching of specific content. This body of knowledge includes representation and formulation of concepts, pedagogical techniques, knowledge of what makes concepts difficult or easy to learn, knowledge of student's prior knowledge and theories of epistemology (Koehler et al., 2007). Therefore, the results of the analysis imply that the teachers have knowledge of representation and formulation of concepts, pedagogical techniques, knowledge of what makes concepts difficult or easy to learn, knowledge of student's prior knowledge and theories of epistemology.

5.6.5   Technological Pedagogical Knowledge of Teachers

TPK as an essential body of knowledge highlights the existence, components and capabilities of various technologies as they are integrated into teaching and learning activities or environments. This body of knowledge includes an understanding that a range of tools exists for a particular task (e.g. fostering collaboration) as well as knowing what pedagogical strategies to employ to get the most out of a piece of technology (Koehler et al., 2007).

Table 5.24:   Analysis of technological pedagogical knowledge of teachers

	Percentages				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I can choose technologies that enhance the teaching approaches for a lesson.	47.4	4.0	7.1	37.5	4.0
I can choose technologies that enhance students' learning for a lesson.	49.7	2.6	8.2	28.4	11.1
My teaching profession has caused me to think more deeply about how technology could influence the teaching approaches I use in my classroom.	41.2	.9	5.4	27.6	25.0

I am thinking critically about how to use technology in my classroom.	47.4	4.5	1.4	31.8	15.1
I can adapt the use of the technologies that I am learning about different teaching activities.	68.2	3.4	2.3	18.2	8.0
I can select technologies to use in my classroom that enhance what I teach, how I teach and what students learn.	70.2	3.7	3.1	16.8	6.3
I can use strategies that combine content, technologies and teaching approaches that I learn about in my coursework in my classroom.	68.8	7.7	4.3	13.1	6.3
I can provide leadership in helping others to coordinate the use of content, technologies and teaching approaches at my school and/or district.	45.7	9.7	12.8	23.6	8.2
I can choose technologies that enhance the content for a lesson.	46.3	6.5	8.0	29.5	9.7

As shown in Table 5.24 the respondents indicated their exact feelings towards the combination of pedagogy and technology. The participant's feelings of the actual use of the technology to support their teaching approaches revealed that most of them do not have the knowledge to use technology to support their teaching approaches. Table 5.24 shows that more than 65% of the respondents indicated a low level of skills to combine pedagogy with technology to teach Business Education in three of the nine constructs investigated. Especially, 70.2% of the respondents indicated strongly disagree in the statement which says: "I can select technologies to use in my classroom that enhance what I teach, how I teach and what students learn." Also,

in other statements, more 68.8%, and 68.2% of the respondents respectively strongly disagree with the statements. Additionally, Table 5.24 indicates that the majority of the teachers teaching Business Education lack the TPK to teach a Business Education subject.

Also, the mean, median, mode and standard deviation results below illustrates that Business Education teachers lack TPK which is the knowledge that highlights the existence, components and capabilities of various technologies as they are integrated in teaching and learning activities or environments.

Table 5.25: **Summary of statistical results for technological pedagogical knowledge of teachers**

Mean	Median	Mode	Std. Deviation
2.33	2.56	1	1.247

Koehler et al., (2007) assert that TPK requires building an understanding of the potential benefits and limitations of particular technologies as they can be applied within particular types of learning activities, as well as the educational contexts within which these technologically supported activities function best. Therefore, it is evident from the analysis results that Business Education teachers lack the knowledge that highlights the existence, components and capabilities of various technologies.

5.6.6   Technological Content Knowledge Of Teachers

TCK is considered an understanding of the manner in which technology and content influence and constrain one another in the teaching and learning environment. TCK involves understanding the manner in which technology and content are reciprocally related to each other (Koehler et al., 2007). One of the importance aspects of TCK in the field of teaching and learning is that it helps teachers visualise instances where technology can be effectively integrated into their teaching (Margerum-Leys & Marx, 2002). In planning for instruction, content and technology are often considered separately.

Table 5.26:   Analysis of technological content knowledge of teachers

	Percentage Response				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I know about the technology that I can use for understanding and doing my work.	57.5	11.4	5.1	20.8	5.1
I know computer applications related to Economics/Accounting/Commerce/Business studies/Business management.	62.2	13.6	9.4	11.9	2.8
I use the technologies to develop learning activity and students' tasks.	63.6	11.9	9.4	12.2	2.8
I use technologies as my source to develop my own knowledge.	47.2	12.8	2.6	31.5	6.0

Table 5.26 illustrates that a majority of the respondents do not possess the knowledge or skills to combine technology with content. The results in the table show that more than 55% of the respondents indicated not having the technology knowledge to integrate with their CK. In particular, 63.6% of the respondent indicated strongly disagree with the statement which says: "I use the technologies to develop learning activity and students' tasks." Also, in other statements, the 62.2%, and 57.5% of the respondents indicated strongly disagree. The reason for the teacher's responses could be that the teachers do not understand the right technology to use to deliver the content of their subjects. The results could be a further indication of lack of access to technology and training that teachers needed to integrate technology into their teaching, as it is clearly revealed with the percentages 62.2%, 63.6% and 47.2% that the respondents do not have TCK. On the other hand, the mean median, mode and standard deviation results below indicates that Business Education teachers perceive that they lack TCK, which is knowledge that involves understanding the manner in which technology and content are reciprocally related to each other.

Table 5.27:   **Summary of statistical results for technological content knowledge of teachers**

Mean	Median	Mode	Std. Deviation
2.00	1.75	1	1.024

Koehler et al., (2007) assert that teachers need to know not just the subject matter they teach but also the manner in which the subject matter is transformed by the application of technology. From the results of the analyses data, it is evident that Business Education teachers perceive themselves not competent with TCK.

5.6.7   Technological Pedagogical Content Knowledge Of Teachers

TPACK encompasses understanding, and communicating representations of concepts using technologies; pedagogical techniques that apply technologies appropriately to teach content in differentiated ways according to students' learning needs (Koehler et al., 2007).

Additionally, TPACK includes knowledge of what makes concepts difficult or easy to learn and how technology can help redress conceptual challenges; as well as knowledge of students' prior content-related (Koehler et al., 2007).

Table 5.28:   **Analysis of technological pedagogical content knowledge of teachers**

Percentage

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I can teach lessons that appropriately combine any of Economics/Accounting/Business studies/ Business management, technologies and teaching approaches.	74.7	8.0	2.8	11.6	2.8
I help my colleagues to understand how to integrate technologies, and	77.8	9.7	3.4	8.2	0.9

teaching approaches in their teaching of Economics/Accounting/Business studies/Business management.					
I use various approaches with various software to enhance students' understanding of learning of Economics/Accounting/Business studies/Business management courses.	66.8	12.2	7.7	11.9	1.4

Table 5.28 indicates the results of the analysis on TPACK. The results of the analysis reveal that more than 65% of the respondents strongly disagree with the statements investigated. The responses on the three TPACK attributes show higher percentages of strongly disagree as 66.8%, 74.7%; and 77.8% respectively. This is indicative that the overall response as negative. The result suggests that a large number of teachers teaching Business Education do not possess complete TPACK knowledge as expected that teachers should have to be able to teach effectively. This result could also be indicating a lack of technological skills or lack of access to educational technology. Furthermore, the result could indicate unpreparedness of both the teachers, government and the school management for technology integration. Also, the table could be indicating the need for workshops and training on technology integration for teachers of Business Education. Additionally, the mean, median, mode, and standard deviation analysis result below indicates that Business Education teachers lack knowledge of techniques to apply technologies appropriately to teach content in differentiated ways. This imply that according to students' learning needs; Business Education teachers do not possess appropriate knowledge of what makes concepts difficult or easy to learn, and how technology can help redress conceptual challenges.

Table 5.29: **Summary of statistical results for technological pedagogical content knowledge of teachers**

Mean	Median	Mode	Std. Deviation
1.58	1.00	1	.830

Harris et al., (2009) stated that technology determines the use of content and pedagogy knowledge based on the issues that teachers encounter in education. Therefore, the above results imply that teachers perceive themselves not competent in technology use in teaching and learning.

5.7 CONCLUDING REMARKS

Presently technology is playing a crucial role in all the sectors of the world economy, as well technology attributes maintain a vital role in determining the level of acceptance and adoption of technology integration (Rogers, 1995). However, the results of teacher's technology knowledge suggest that Business Education teachers do not possesses necessary technology knowledge to integrate technology in their teaching.

Table 5.30: **Distribution of overall TPACK scores**

	TK	PK	CK	TPK	TCK	PCK	TPACK
Mean	1.73	4.42	4.18	2.33	2.00	4.45	1.58
Median	1.68	4.79	5.00	2.56	1.75	4.75	1.00
Mode	2	5	5	1	1	5	1
Std. Deviation	.479	.743	1.016	1.247	1.024	.649	.830

The participant responses indicated that most of the teachers do not have adequate knowledge in terms of TPACK. From Table 5.30 above, it seems teachers are very confident about their CK, PK and their PCK. This implies that Business Education teachers believe that they possess sufficient knowledge of Business Education concepts, theories, ideas, organisational frameworks, methods of evidence and proof, as well as established practices and approaches

in teaching Business Education. It also means that the teachers considered themselves to have adequate knowledge about techniques or methods used in the classroom, the nature of the learners' needs and preferences, and as well as different strategies for assessing student understanding in Business Education. Additionally, teachers perceiving themselves to have sufficient CK, PK and PCK, means that they possess adequate knowledge of representation and formulation of concepts, pedagogical techniques, knowledge of what makes Business Education concepts difficult or easy to learn, knowledge of student's prior knowledge and theories of epistemology. However, Table 5.30 also shows that Business Education teachers seem not to have the knowledge related to technology which is a requirement in terms of TPACK for proper ICT integration to take place.

This means that the integration of educational technologies in the teaching of Business Education still have a long way before it could be achieved. The result could mean that effective teaching and learning of Business Education in Nigerian secondary schools is still far from being realised. However, most teachers responded positively as this could be a sign that they regard technology as a necessary tool to assist them in accomplishing their teaching and learning goals.

5.8   CONCLUSION

The purpose of this chapter was to present the analyses of the quantitative data collected using the questionnaire. The quantitative analysis in this chapter was presented in sections (A, B, and C) so as to properly answer the key research questions. The purpose of section A was to analyse data for selected technologies used in the teaching and learning of Business Education, and to answer the key research question "what technologies are being used in the teaching and learning of Business Education in Nigerian secondary schools?" In the analysis, technologies were put into three categories (tools, applications and web applications) for easy understanding of which technology was being used in the teaching activities. The results indicated that Business Education teachers do not integrate technology in their teaching.

Similarly, the analysis of section B was done to answer the research question "What factors motivate teachers in the use of technology in the teaching and learning of Business Education in secondary schools in Nigeria?" The section reflects the beliefs of teachers towards the integration and adoption of computers. The results of the analysis indicate that the teachers believe the school, students, teachers and society would benefit from technology integration in the teaching and learning, and that technology makes work easier and is effortless to use.

In section C, the results of the analysis show that the majority of the teachers possess good PK and CK, however, they do not have TK. Therefore, this answers the key research question: "What knowledge do teachers of Business Education have in terms of TPACK in teaching and learning of Business Education?" Hence, Business Education teachers do not have TPACK knowledge to integrate TPACK to enable them to teach effectively.

CHAPTER SIX

FACTORS MOTIVATING TEACHERS TO INTEGRATE TECHNOLOGY IN TEACHING AND LEARNING

6.1 INTRODUCTION

In the previous chapter quantitative data analysis of the study was presented. This chapter presents Business Education teachers' perceived motivating factors to integrate technology in teaching and learning. Two subthemes emerged. The first subtheme focuses on how technology enhances teaching and learning. The second subtheme focuses on technology as a tool to close the inequality gap in secondary education. The analysis of data in this chapter are presented with direct quotations from face-to-face interviews and focus group discussions of the study participants. The presentations in this chapter reflect the perceptions of Business Education teachers, since they do not integrate technologies in their teaching and learning activities.

The main themes to be presented in this chapter are:

1. Technology enhances teaching and learning; and
2. Technology is a tool to close inequality gap in education.

6.2 TECHNOLOGY ENHANCES TEACHING AND LEARNING

In this theme, what was found from the qualitative data analysis is that the participants frequently made statements that indicate that technology integration enhances teaching and learning. Some participants perceived that having access to a range of engaging digital tools and services, materials and resources could encourage use of technology in their teaching. Also, the participants perceive that constant prompt access to online teaching resources and materials that could have taken weeks and months to access from the libraries influences teachers to integrate technology in their teaching. From these participants' declarations and conceptions came the perception by the researcher that technology integration enhances teaching and learning. According to the teachers' views, technology enhances teaching and learning through the following factors: technology encourages participation, technology integration extends learning time, technology integration enhances communication.

6.2.1 Technology Encourages Participation

The responses from participants show that technology integration motivates learners to participate actively in class discussions and activities. Teachers' experiences of technology integration in the classroom suggest that learners are more motivated when their teachers integrate technology in their teaching activities. The responses show that learners are more actively engaged in class discussions and teachings that integrate visual resources like videos, graphs and pictures. The participants acknowledged that integrating technology integration encourages learners participate in class, and it also enables them pay considerable attention as well as make contributions. The significance of technology integration has been reported by the participants as follow:

> *"I do not use technology in my teaching always, but I have noticed that whenever I use technology to teach, my learners pay much attention and are motivated. They also participate in class discussion because they see pictures, graphs and most of the times I project video clips for them to watch. They get inspired to learn with technology than when I teach them using traditional method of teaching" (IM)*

Another participant shares similar ideas in regard to learners being encouraged to participate in class activities as a result of use of technology The participant declared that whenever the learners are given activities that would require them to use technology they are always motivated to complete it on time, and they do it thoroughly:

> *"Sometimes if I give my learners homework or any activity that does not include use of technology, they do not complete it on time, some will not even do it and they usually come with one reason or the other why they could not complete the task. But I have noticed that, if I give activities that include use of technology they are always motivated to complete it on time; probably they want to show that they got some technology skills"(UA)*

From the responses above, what is evident is that technology integration in teaching and learning motivates learners in their learning of Business Education. The views of the participants show that; learners enjoyed learning with technology as they demonstrate to be more motivated to participate in class discussions which they usually feel reluctant to do before. These participants' experiences indicate acceptance and willingness to learn with technology, and to study in a technology-enriched classroom teaching and learning over traditional

classroom teaching and learning. During focus group discussions one participant's view on technology integration elaborated the impact of teaching with technology. The participant's statement indicates that as a result of integrating technology in teaching and learning learners are motivated to complete their assignments, and contribute in class discussions. The participants further stated that this is because the learners are sometimes given a task to search the internet for more information regarding their subject matter. The participant affirms that:

> *"Basically, when one is motivated to do something, he does it with all ability. Due to the availability of technology learners are now more motivated than ever before to do their assignments, and contribute in class discussions, which is better than any style of teaching, as they are sometimes given task to search the internet for more information and you observe them being motivated in completing their task"(RM)*

A similar experience was shared by another participant. The participant stated that technology allows the learners the opportunity to search for information online to complete their assignment without a teacher's assistance, and then be able to defend their findings in their various classes.

> *"I think using technology to teach is one of the most successful ways of teaching, because it allows the learners the opportunity to search for information online and come back motivated to engage in class discussions, as well as express themselves on classroom discourses"(AA)*

The participant's experiences demonstrated support for the use of technology in teaching and learning of Business Education. During face-to-face interviews, the participants acknowledge that using technologies to teach encouraged learners to participate in class discussions and ask questions to solicit clarification. The participants' statements depict learners who are encouraged as a result of technology integration in teaching and learning. Learners having access to technology in schools will enable them to expresses their opinion about issues relating to their subjects as well as contributing to classroom discussions.

In addition, teachers' responses indicated that learners often do not participate in class discussions when traditional methods are used. According to the participants, whenever traditional methods of teaching were used learners do not show any interest to engage in class discussions. This could be because in traditional method of teaching, teachers usually dominated classroom activities and learners become mere recipients of information. The

statements from the participants indicate that integrating technology in classroom teaching and learning motivates learners into active engagement in class activities. The participants consider technology as an aid to teaching and learning because it encourages learners to develop a deeper understanding of content, and equipped learners to express their opinions in class whenever they felt it is necessary to do so without problems. The responses from the participants show support for technology integration in teaching and learning of Business Education in secondary school. From the above, it means that with technology in the classroom, students transit from being mere recipients of information to being participants actively engaged with new information in a learning environment.

6.2.2   Extended Learning Time

The participants in this study acknowledged and embraced various ways in which technology assists both teachers and learners in the study of Business Education in secondary school. The participant's responses depict technology as having the ability to extend learning time for the learners. Participants mentioned that students learning opportunities are continuous with technology available to them; as they have access to their teachers constantly even after school hours. One participant's statement reveals that with technology at the disposal of the learners they have unlimited access to study resources and materials that are relevant via their school websites. Teachers indicated that the learners can access these study materials from anywhere and at any time as far as they have internet connection where they are. One participant during a face-to-face interview affirmed that:

> *"Technology offers learners extended learning time on a daily basis. With technology at the learners reach, education does not stop at the end of the school day because students have access to their teachers even after school hours, they have unlimited access to resources and materials related and relevant to subjects via their school websites which they can access from anywhere and at any time"(ICJ)*

Another participant shared a similar view with regard to having extended learning time accrued to learners by technology. The participant's view is that with technology at the reach of Business Education learners, they can continue their study from where they stopped at school, no matter where they are or at whatever time: The participant view indicated that learners receive different kind of assistance after school hours. HO mentioned that learners receive teacher's help via electronic email or through online collaboration, as well as tutorials to assist them continue their learning.

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"After school hours learners can still get help and tutoring online at any time, irrespective of where they are as far as they have access to internet. They can receive help whether from the teacher via email or through online collaboration, or from a help web sites. Such help the learners receive extends their learning time"(HO)

What emerged clearly from the excerpts above is that technology extends learning time for students. The participant's view is that even after school hours, teachers do provide support to the learners through the use of technology-assisted channels. The participants stated that technology integration in teaching and learning breaks boundaries because it plays a key role as a medium of communication. Much work could be done from a distance via email, phone and fax. In the sense that whatever the learners could not cover in a day at school and during school hours they can accomplish it even after and outside school as far as they (learners) have access to internet where they are. The participants' statements show that technology provides learners an unlimited access to their subject materials and resources which they can rely on to extend their study even when they are at home. From the participants' comments, it seems they may acknowledge the value of technology over other teaching methods. Similarly, the focus group discussion revealed that technology extends learners' learning time. The participant declared that with technology teachers were able to provide support to the learners even on weekends:

"Even during weekends, I usually receive SMS from my learners asking for clarity on assignment or homework given to them to complete, especially those learners that were absent on Fridays. Technology is truly helping learners in their study"(FGD 1)

The participants in the interviews reveal that through technology, teachers were able to provide support to the learners even after school hours. The above focus group statement captured one participant's experience of offering support to learners after school hours and on weekends. The statement indicates that with technology, learners could receive necessary support from their teachers at all times and at whatever places. The participants' statements reveal that through the availability of technology in teaching and learning of Business Education teachers were able to provide necessary support to their learners.

The participants' statements illustrate that technology assists teachers to provide effective teaching to the learners, and bridge the boundary between the school and outside school environment. Thereby extending learning time to learners even when they are away from the

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classroom. This suggests that technology integration extended learning time and opportunities that would not have been possible with traditional teaching methods. Not only did technology integration enable learners extended time to study, but also receive support from their teachers and peers through online collaboration.

6.2.3 Technology Integration Enhances Communication

The participants in this study reported that integration of technology in teaching and learning enhances communication, in which members of the school community can share and talk about academic issues, and even communicate with people outside the school environment. The analysis of data obtained from face-to-face interviews show that with the help of technology in teaching and learning, teachers now communicate faster to the students than it used to be when there was no technology in the school. Also, the analysis of data shows that communication between parents and the school management has taking a new shape because of technology. The significance of enhanced communication has been reported by one of the participants as follows:

> *"One good thing about technology integration is that it provides you with choices and pattern of communication. You may decide to call your learner or the parents on a cell phone, leave a voice message, send SMS or send electronic mail. You are not restricted to a particular pattern of communication"(IR)*

Another participant during focus group discussion emphasised that with technology available in schools there is no restriction to communication. Member of the school community can communicate to each other or as a group through various channels. The participants' responses indicate that with technology integration in teaching and learning, communication between teacher-to-teachers, students-to-students; teacher-to-student and other members of the school community have improved tremendously, as shown below:

> *"Web applications can be used by the teachers as well as the students to communicate to each other or as a group. For instance, school enable web page, School Facebook page, twitter, WhatsApp group, Gmail, Yahoo and many others to connect and communicate, there is no limit when it comes to communication between teacher-to-teachers, students-to-students; teacher-to-student and other members of the school community, technology has broken the boundary"(FGD 2)*

What emerged clearly from the excerpts above is that in the past, there used to be a challenge in communication between the learners and their teacher or between teacher and teacher, but because of the advent of technology integration in schools such challenges has been minimised. The teachers appreciate the power of technology to enable bulk delivery of messages.

A focus group discussion conducted by the researcher also indicated that technology enabled communication between the schools and the parents:

> *"Most parents are exceptionally busy with different schedules, most parents work different hours, and cannot constantly assist their child with homework or attend our school Parent Teachers Association Meetings (PTA). But with the availability of technology such parents can communicate with the schools, go to the school website and see what their children are working on, they can as well contact and communicate with their children's' teachers through email and the school web sites, more especially afford to make a follow upon their children's attendance"(FGD 3)*

The participant in the focus group discussion expressed the optimism that technology integration offers undeniable assistance when it comes to communication. What can be deduced from the participants' statements is that technology integration in schools has many potentials to enhance teaching and learning of Business Education. The statements reveal that integration of technology in education system enables communication, for instance, a teacher can send messages to a large number of learners at the same. Additionally, learners may seek for clarification on assessment task from their teachers and receive clarification from their teacher immediately even when they are not in school. Some participants claim that integration of technology in teaching and learning affords the teachers different means of communication with their learners and colleagues as there is no restriction to a particular pattern of communication.

The participants considered technology to have given a breakthrough to communication, with students no long finding it threatening to ask questions for clarification or to air their views during online discussions. The participants stated that online communication enables the students to articulate their views properly before posting on a chat group or sending as emails. The participant's statements denote that communication online could be a better option through which learners who are shy to speak in public such as classroom could communicate freely through written communication mode rather than spoken words. This suggests that technology

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integration in the teaching and learning classroom had a positive effect on students' learning. The perceptions of teachers on the relevance of technology integration to enhance communication in the teaching and learning of Business Education appears positive. This, therefore, shows that the participants appreciated the integration of technology in teaching.

6.3 TECHNOLOGY AS A TOOL TO CLOSE INEQUALITY GAP IN EDUCATION

Integration of technology does not only enhance communication, but it does it in more comprehensive way. The teachers' comments reveal that an inequality gap exists in education. The participants' views suggested that technology integration in teaching and learning helps to close the inequality gap. According to the participant's statement, this gap manifest in different ways, between schools and between students. This is from the participants' statements that considered technology integration a remedy to close gaps that exist in educational practices: "Small and under-resourced schools can do much better with technology, they can access resources and other materials online to minimise cost."

6.3.1 Minimise Cost of Running School Activities

The statement that referred to technology as a way of enabling schools to minimise cost was made by participants expressing their thoughts about technology integration and the support they believe technology integration created in teaching and learning. The following statement was made during the face-to-face interviews. One participant stated that:

> *"Some schools are big and they usually receive support from the government and from non-government organisation, while some schools nobody cares about them even the government. Same exist amongst the students, but with technology those small and under-resourced schools can do much better academically, they can access resources and other materials online to minimise cost"(NG)*

Another participant shared a similar view about utilising technology in teaching and learning of Business Education. The participant declared that integrating technology in teaching helps the teachers, the learners as well as school managers to overcome some challenges in expenses. This was evident in what the participant said:

> *"Fund to buy teaching and learning materials are always an issue among less resourced schools. Technology can help to overcome such challenges, schools can use*

electronic forms instead of paper, they can use email instead of printed memo's, as well use virtual labs, electronic textbooks instead of hard copies, as well as thousands of free online resources that can save schools some expense and give students excellent educational experiences" (ACC)

The participant viewed technology integration as a way of bridging the inequality gap that exists in education and in teaching and learning. There are variations in the way things happened in schools. The teacher's statements capture the gap in support and funds that are available to different schools and learners. According to the teacher's statements, some schools are marginalised as they do not receive support from the government, NGOs and even from the community like other schools do. The teacher's views depicts experiences of teachers who have witnessed many schools struggling to keep up with different resource shortages and lack of support. The focus group discussion captures another participant's statement. According to the participant some technology resources exist that the school can use to reduce cost of running the day-to-day school activities. The participant affirms that:

"There are some technology resources the school can use to minimise cost in their day-to-day activities; such as discussion boards, listservs, email groups and so many other online services. Teachers can share their best practices of teaching using technology through digital means to help one another develop, especially the newly graduated teachers joining the profession"(FGD 4)

An interview conducted by the researcher captures another statement from another participant regarding technology as a medium to help schools minimise cost to reduce the inequality gap which exists among schools. The participant was of the opinion that technology, if fully implemented in schools could go a long way to assist schools tremendously in reducing cost of managing schools. This is reflected in what the participant said:

Technology integration if properly and fully implemented in our schools will assist to minimise too much expenditures for both big schools and small schools. For instance, schools could use live streaming in training all their staff for conferences, development training programs and workshops, instead of sending few teachers to go and learn and come back to train other staff members. Using live streaming, opportunity is given for everyone to watch and learn by themselves, and at the same time minimise cost for the schools (IA)

The participants both during face-to-face interviews and focus group discussions acknowledged the importance of integration of technology in the teaching and learning of Business Education. Some of the participants who are in higher positions (principals, heads of department) at their various schools, who have used technology in their activities considered technology to have helped them manage their responsibilities well. This suggests that technology integration supports school managers in minimising cost of managing schools.

The participants of the study acknowledged the value and support of technology integration in teaching and learning as well as in-general management of the school. This indicates that the importance of integrating technology in schools is not only felt in the classroom but in other department of schools. The participants noted that there are technology capabilities that could allow schools to manage school resources and explore other ways of working effectively thereby helping schools minimise cost. The participants acknowledged that with technology, schools could make use of email for communication instead of transport; that is sending the school drivers to use school buses to distribute messages to other schools.

The participants stated that technology integration could help schools in the way of using electronic forms instead of printing hard copies. The schools could also use virtual laboratories to teach students. This suggests that technology integration offers great support to schools to avoid waste of resources and minimise cost. Participants also considered the support technology integration offered in assisting schools reduce excess spending in managing schools. With technology fully integrated in the schools, electronic textbooks could be utilised instead of buying hard copies. Only one download needs to be done and shared among learners and teachers to read on their computers. The participants asserted that with technology integration schools could train their staff members in many skills. The school could connect to a live conference as well as workshops on staff development. All the school need to do is to stream the event and have staff members participate. This way the school will save more money instead of sending some staff members to go and represent the schools at the conference or workshop. Also, at the same time the school is making opportunities available for every staff member to develop their skills. Hence, the integration of technology in teaching and learning offers great support to the schools for effective teaching practices.

6.3.2   Support for Differentiation and Closing Learner Attainment Gaps

Participants' conceptions of technology integration in teaching and learning considers technology to be able to offer support to teachers to cater for learners' differentiation in learning

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and as well close learner attainment gaps in education. This statement was made by the participants in this study during face-to-face interviews. These utterances suggest that technology integration in teaching and learning encouraged students' individual capacities to study and think as they have access to various resources and materials at their disposal. The following statement was by a participant during face-to-face interviews

> *'Technology integration in teaching and learning support differentiation in learner's learning, it can accommodate each learners'-varying learning styles. Learners can use internet for researching different educational materials and resources, new opportunities for learning that suit their learning styles. Also, gifted students can make use of different technologies to comfortably work at their own study pace and explore different subjects in more depth than the basic school curriculum." (SE)*

Another extract from the face-to-face interview captures the participant's view of technology as offering individual learners opportunity to create their own learning network. According to the participant, every learner in a technologically enriched classroom has the opportunity to create their personal learning style and maintain it because of the availability of different technologies at their disposal. The participant stated that:

> *"Learners' learning disparity is well taken care of in a technology-enriched classrooms, with the availability of technology in schools, learners have the opportunity to create their personal learning networks with other learning organisations through online channels like Facebook, Twitter, Gmail, Yahoo, to search for learning resources and materials which might not be available in their school libraries, students share ideas and resources, and get the support they need through different online channels thereby closing learner attainment gaps which exist in many classrooms."(OC)*

A statement from another participant during the focus group discussion revealed that if technology were fully integrated in a teaching and learning classroom, learners could create things such as web sites, blogs and multimedia presentations as part of their individual projects:

> *"Technology cater for learner's differentiation in learning. Integrating technology in education offers tremendous support for students learning, students can create things such as web sites, blogs and multimedia presentations as part of their individual project*

or group project, and build a level of digital skills which will be vital in today's digital world, thereby closing attainment gaps that exist in education."(FGD 4)

Emerging from the above extracts was that technology supports teachers to cater for learner's differentiation in learning. The above statements show that teachers valued using technology in their teaching. Also, the statements depict teachers who had many years of experience and who understood student's differentiated ways of learning, learners' different abilities and capabilities and how to handle them. The statement illustrates opportunities available for integrating technology in teaching and learning. The teacher's statements pointed out different skills that technology can offer to the school community to cater for learner's differentiated ways and style of learning in Business Education. The participants acknowledge that technology integration in teaching and learning offers teachers great opportunities to teach in ways and styles that suit them and their learners.

One participant during a focus group discussion claimed that numerous technological resources as well as materials are available that teachers can use to support learners' diverse ways of learning. The participant emphasised that technology integration in teaching and learning has the potential to minimise learners' attainment gap in education. This is revealed in what the participant said:

> *"Gaps in student's attainment could be minimised by integrating technology in teaching and learning. Different technology resources and materials are available that teachers and schools can use to facilitate tailored instructions that would accommodate different students learning needs and styles." (FGD 5)*

The above statements revealed how differentiation in learners learning and attainment gaps could be closed. Additionally, one important lesson that emerged from the participants' views of technology integration in teaching and learning is that teachers have a strong belief that technology could cater for learner's differentiation in learning and could also offer tremendous assistance in bridging the attainment gap. The participants also considered accessibility and relevance of online resources which are always available through technology, and which enhanced fast preparation of lesson notes and plans to accommodate learners' different learning styles.

The statements revealed the ability of technology integration to provide avenue that would afford every learner ways and opportunity that could favour him or her in learning. The

participants' statements suggested that the teachers have a strong understanding of the right tools and resources that could be used to cater for the differences that exist in learners learning styles. This suggests that technological support exists which can be used to tackle teaching and learning challenges that could emerge in Business Education.

The teachers acknowledged the value of technology integration for instilling technology skills in students. One participant indicated that through integration of technology in the classroom, learners could learn the skills of technology to do different things. Participants also valued the free resources and materials that technology integration offers the teachers and students. Participants declared that different technology resources and materials are available online for teachers to incorporate in their teaching.

Participants asserted that technology integration provided learners and teachers numerous opportunities. The participants recounted that with technology available learners have the opportunity to create their personal learning networks with other learning organisations through online channels like Facebook, Twitter, Gmail and Yahoo to find learning resources and materials which might not be available in their school libraries, students share ideas and resources, and get the support they need through different online channels. These views suggest that technology integration in teaching and learning provides support in different capacities, for individuals and for groups and enhance them to prepare as well as engage in various activities.

6.4 DISCUSSION

The participants in this study perceived that there will be these benefits from technology integration in teaching and learning of Business Education. The benefits as perceived by teachers include that technology promotes effective teaching and learning of Business Education and that integration of technology extended opportunities for participants to think about ways and technology to use in their teaching to make it more effective and interesting to the students. Through integration of technology in teaching and learning communication between teachers and learners, schools and parents could be made easy. Hence, parents can communicate to schools to know about their children's attendance as well as academic improvement.

The teachers perceived the above benefits of technology integration as an opportunity to expand the possibility of acquiring new skills. The participants asserted that the integration of

technology if made available and accessible in their various schools will enabled teachers to accomplish tasks on time, and provide prompt feedback to their learners. This suggests that Business Education teachers in Nigerian secondary schools are willing to integrate technology in their teaching if the opportunity to use technology is made available and accessible to them. The teacher's perceptions is that they will learn new skills and also expand their horizon of other possibilities through the use of technology in teaching.

Business Education as a module provides students with knowledge and skills that enable them to adapt to changes in office technology and develop a broad understanding of business activities, the structure, as well as functions of business institutions and their inter-relationships. In addition, the benefits of technology integration include those related to access instruction by underserved populations, adequately preparing students for future careers, capitalising on best instructional practices, developing higher order thinking activities, and engaging students whose relationships with technology are increasingly native, among others.

The participants perceived technology integration as offering learners extended learning time. The teacher's perceptions are that with technology at the learners' disposal, studying does not stop at the end of the school day because students have access to their teachers even after school hours, they have unlimited access to resources and materials related and relevant to subjects via their school websites which they can access from anywhere and at any time. Essential to technology integration in teaching and learning is that it will assist students to gain control of their learning as they could regulate the pace and direction of their learning without requiring their teachers' presence all the time.

The participants believed that technology integration is a route through which inequality gaps that exist in education can be reduced. The participants believed that some schools usually receive support from the government and non-government organisations, while nobody, not even the government, cares about some schools The teachers commented that that the same issue exists among the students, but if technology could be made available and accessible in schools, those under-resourced schools could do much better. They could be able to access resources and other materials online to minimise the cost of running day-to-day school activities. The participants recognise how instrumental technology integration can be in the teaching and learning of Business Education if made available to the schools. The participants acknowledged that with integration of technology in the teaching of Business Education in Nigerian secondary schools, effective teaching could be on its way. The implication of

teachers' perceived benefits of technology integration is that technology enhances effective teaching and learning.

6.5   CONCLUDING REMARKS

This chapter has presented the first part of the qualitative analysis of the study. The chapter present the perceptions of the study participants with regard to integration of technology in teaching and learning of Business Education in Nigerian secondary schools. Their perceptions were identified and grouped into one new theme "teachers' motivating factors to integrate technology in teaching and learning", and subthemes "technology enhances teaching and learning, and technology as a tool to close inequality gap in education". This new theme and subthemes are new results that are fundamental to this chapter.

It is striking that although the quantitative results of this study portray a negative picture of the access to technology and teachers' lack of confidence in using it, the opinions expressed in focus groups and face-to-face are overwhelmingly positive, possibly reflecting teachers' aspirations and ambitions rather than the discouraging situation most of them find themselves in. This is discussed in the next chapter.

CHAPTER SEVEN:
FACTORS AFFECTING TECHNOLOGY INTEGRATION IN TEACHING AND LEARNING

7.1   INTRODUCTION

The previous chapter presented data on teacher's motivating factors to integrate technology in teaching and learning. This chapter describes factors affecting technology integration in Business Education teaching and learning in Nigerian secondary schools. The factors that affect the integration of technology in Business Education range from: contextual dynamics affecting technology integration, lack of capacity development, teacher's beliefs and misconceptions.

7.2   CONTEXTUAL DYNAMICS AFFECTING TECHNOLOGY INTEGRATION

In this section, findings revealed that teacher's comments do not only reveal motivating factors to integrate technology, but also various contextual dynamics which affect technology integration. The data from face-to-face interviews and focus group discussions illustrate the complexity, differences and contradictions of teachers' experiences about technology integration in teaching and learning. The teachers' experiences on integration of technology seems to be contradictory because the same teachers who commented on the motivating factors to integrate technology also complained about challenging factors to integrate technology in their teaching. Teachers pointed out numerous contextual factors that prohibit technology integration in the teaching and learning of Business Education in secondary schools. Contextual dynamics affecting technology integration emerged as a result of the research participants' continuous rendering of comments that refer to poor policy implementation, non-availability of modern technology equipment and lack of electric power supply.

7.2.1   Non-availability of Modern Technologies

This section presents and analyses data on non-availability of modern technologies in the teaching and learning of Business Education. Teachers acknowledged the lack of modern technological facilities and equipment in their various classrooms. They regarded lack of technology facilities in the teaching of Business Education as a challenge to teaching and learning of Business Education in secondary schools. The significance of the lack of

technologies in the teaching and learning of Business Education is reflected in the following participant's view:

> *"There is a lack of technological facilities and resources for me to use in teaching Business Education subjects in our school. No technology has been made available to me since I started teaching."(DD)*

Another participant shared a similar view with regard to the non-availability of modern technological equipment in schools. The participant declared that lack of necessary technological facilities in Business Education classrooms is a problem that could affect full integration of technology.

> *"There is a lack of modern technology equipment and resources like computers, Wi-Fi, projectors and printers in our school. Hence, the absence of such technologies in teaching and learning pose a challenge for proper integration of technologies in our classrooms and the school at large."(SE)*

Another participant commented on the issue of non-availability of modern technological equipment in schools. The participant indicated that in their school there is a major absence of modern technologies like computers, Wi-Fi, scanners and projectors. Additionally, the participant revealed that due to lack of access to technologies teachers do not integrate technology into their teaching of Business Education subjects.

> *"Here in our school, we do not integrate technology in our teaching due to non-availability of necessary technology equipment like computers, Wi-Fi, scanner, projectors, therefore we cannot talk about the integration of technologies when the equipment is not available to us."(UA)*

The statements above depict lack of technological facilities in schools. From the statements, what emerged clearly is the teacher's lack of access to technological equipment to use in their Business Education classrooms. Teachers expressed their concerns that lack of modern technological resources in schools posed serious challenge to the teaching of Business Education. The participant's views denote lack of technological resources in Business Education classrooms. The focus group discussion captures one of the participants views on the lack of technology in the schools. The participant when asked "how has your school supported you in terms of technology equipment?" affirmed that:

"Because we do not have necessary and relevant modern technological facilities in our school, even a single computer set we do not have in our school. So, there is no support from my school based on the integration of technology."(FGD 5)

Also, the interviews conducted by the researcher indicated that the major challenge facing Business Education teaching and learning in schools is the absence of technology facilities.

"Major challenges we encounter in teaching Business Education [are] the unavailability of modern technological equipment."(IA)

Another participant also emphasised the lack of modern technologies in teaching Business Education in their school. The responses indicate that the main reason teachers do not integrate instructional technologies in their teaching is lack of access to desirable technologies.

"I do not use any kind of technology to teach because our school did not provide such technologies for the teachers."(ICJ)

What emerged clearly from the excerpts above is that there is a lack of technological facilities in the teaching of Business Education. The participants' statements indicate that teachers do not use technology to teach due to lack of access to technology facilities in schools. Also, the teacher's remarks signify lack of technology facilities as a major factor affecting technology integration in the teaching of Business Education in secondary schools. The views of the participants show that most of the secondary schools in Nigeria lack access to different technologies and not only one piece of particular technology equipment but many. These participants' views denote lack of necessary technological equipment and resources to teach Business Education in secondary schools. This suggests that lack of technological equipment and resources in the teaching of Business Education in secondary schools affects the teaching of Business Education.

The participants declared that they do not teach with technology because their schools did not provide them with the necessary technology to use in their teaching. This suggests that the teachers could be willing to integrate technology into their teaching of Business Education but due to lack of necessary technological equipment their desires will only remain a dream. For instances, the participants declared that technology equipment like computers, projectors, IWBs, emailing systems are not available and accessible to the teachers to integrate into their teaching.

The implication of the above statements from the participants is that the schools only teach theories without exposing the learners to practical experience. In this case, the learners may know the definitions of different concepts, the definition of what computer is as well as parts of the computer but have not even seen or touched a computer, therefore giving rise to lack of effective teaching and learning. The participants indicated that among the many challenges facing the delivery of Business Education instructions, lack of necessary technological equipment remains the major issue. What can be deduced from the participants' views is that with the integration of technology many of the challenges facing the teaching and learning of Business Education could be minimised. However, because of the non-availability of modern technologies students still face constant deprivation of effective understanding and application of Business Education, while the challenges remain unresolved.

7.2.2 Poor Electricity Supply

The participants of this study reported that lack of electricity supply to their schools posed a serious challenge to the integration of technology. Teachers acknowledged that without steady supply of electricity to the schools, it will be difficult to integrate technology in their teaching. Teachers views indicated that some schools scarcely had electricity; therefore, they chose not to commit to the integration of technology to avoid disruption of teaching and learning due to lack of constant electricity. A participant affirmed that:

> *"We cannot make use of the technologies we have here in our school efficiently due to poor electricity condition. The problem of not having steady power supply contributes virtually to all other problems facing schools." (FGD 6)*

Another participant emphasised the lack of electric power supply and its consequences in the integration of technology in classroom teaching and learning. The response also indicates that not using instructional technologies is due to unavailability of a reliable power source that could supply needed electricity to the schools.

> *"The main challenge is the lack of power supply to our school, absence of power supply to the school are consequential to not using technology tools. When there is constant electricity teacher can make use of laptops, computers, and projectors conveniently in their teaching."(FGD 7)*

Another participant shared similar experiences with regard to the poor electric power supply to the schools. The participant emphasised that there should be a constant electric power supply to power the technological tools such that it enables the teachers to put them into use:

> *"There should be a constant electric power supply to power a few technologies that we have here in our school. Because if we have electricity the teachers could put the equipment into effective use, but because of the fact that we hardly see electricity, we do not border to use the technologies that we have here in our teaching."(FGD 3)*

From the responses above, it is clear that poor electric power supply to the schools is one of the major challenges facing full implementation of technology integration. The participants' responses indicated that some schools that have technology facilities could not use them because of no electricity to power them. The participants' statements depict that some schools have some technologies but cannot make use of them efficiently as a result of poor electricity supply in their schools. Teachers indicated that not having constant electricity in their school was a major challenge restricting schools from making efforts to integrate technologies into the teaching of Business Education. The participants' views illustrate that constant electricity will lead to effective use of technology in teaching and learning. These participants' experiences indicate that electricity contributes to the effective use of technological equipment in teaching and learning. Lack of electricity poses a challenge to full integration of technology in the teaching and learning of Business Education in Nigerian secondary schools. The focus group discussions showed that electricity is key to integration of technology in teaching and learning, and that if the schools do not have a constant source of electricity it would be difficult for the teachers to effectively use technology in their teaching. One participant when asked "what motivates you to use or not to use technology in your teaching?" affirmed that:

> *"I will say that poor electric power supply is the main factor for lack of technology integration in schools. The issue of constant electric power supply I think should be the first thing to sort out when thinking of technology integration, then followed by the provision of technology. This is because the major challenge in the use of technology to teach is the problem of lack of regular power supply."(FGD 5)*

What is evident from the participant's response is that electricity is the main factor to technology integration, therefore, without constant electric supply, it will be difficult to achieve full implementation of technology integration or enjoy the benefits of integrating technology

into teaching and learning. The responses highlighted that schools not having constant electricity is the major challenge in the technology integration project.

The participants recognise that electricity is the key issue in achieving the implementation of technology integration in Nigerian schools, therefore it should be the first major thing to get sorted before schools consider the integration of technologies. This indicates that there are indeed a lot of challenges facing the integration of technology into teaching and learning of Business Education in Nigerian secondary schools. One participant declared that not having constant electricity is frustrating and tended to alter teachers' lesson plans for a whole week. This is because some teachers usually plan what to teach for a week. The above statements indicate that participants understand the consequences of lack of electric power supply to technology application in teaching and learning.

The participants acknowledged that with constant electricity power the teachers could put the technological equipment into effective use. So, teachers are not using technologies due to the fact that schools hardly have access to electric power supply. Therefore, most teachers do not include the use of technologies in their teaching/lesson plan as they already know that there will not be electricity to use the technologies even if they are available. Participants further stated that some schools that have technology tools and resources are not making use of them effective because of lack of power supply. Some school have computers and there is no electric supply to power them up. If the sources of electric power could be regular then teachers could be compelled to integrate technology into Business Education.

7.2.3   Poor Technology Policy Implementation Strategy

The data in this study revealed that poor policy implementation is another factor which affects full implementation of technology in Business Education classrooms. The participants' views did not only identify non-availability of modern technologies and poor electricity power supply as part of the contextual dynamics affecting technology integration in Nigerian secondary schools, but also poor policy implementation. The participant's continuous reference to how government and the Ministry of Education neglect to implement the key issues in the educational policy document gave rise to poor policy implementation. This is reflected in what the participants stated:

> *"Poor policy implementation is what I will say is the major challenge in the issue of technology integration in schools. Many things that are stated in the education policy*

document none has been implemented including the provision of technology facilities and resources." (AA)

A similar view with regard to poor technology integration policy implementation was shared by another participant: The participant stated that poor technology policy implementation is among the main issues behind poor technology integration in schools: The participant emphasised that:

"The big problem is within the policy implementation. The policies are there but no effort has been to fully implement it. Technology should be used in teaching but the problem is within the policy implementation, the teachers need to be gotten involved so that they will have access to the technologies and transfer the knowledge to their learners." (IB)

Another participant sharing a similar view with regard to poor implementation of technology policy in schools stated that no effort has been made by the government to distribute computers or other needed technologies to state schools to ensure proper technology integration.

"The Nigerian Federal Government's policy on education introduced computer education to the high schools a long time ago. But till present nothing has been done to ensure full implementation of technology integration in schools. No effort has been made whatsoever to distribute computers and other needed technologies to state schools." (DD)

What is clear from the participant responses is that there are policies which indicated that schools would be furnished with technologies but policies with regard to that have not been implemented. The first statement illustrates that the major issue with regard to technology implementation in schools is lack of policy implementation. The second statement depicts the lack of will by the government to fulfil what is stipulated in the policy document. The third statement supports the second statement, as it reveals lack of effort from the government to implement what is contained in the education policy as well as the technology policy to ensure integration of technology in the teaching classroom. The above statements indicate that understanding what is contained in the policies is important, before providing solutions to the issues of technology integration into teaching and learning activities in schools. Consulting a policy document is inevitable in the implantation process. The responses reveal that the

challenges schools are facing presently about integrating technology is poor policy implementation. This is further revealed in one participant's statement:

> *"There are many governmental policies and documents that talk about the implementation of technology in teaching and learning. The people in government should know that there are differences between making policies and implementing policies. Our government is good in making policies but to put the policies in action is where the problem lies; implementation of technology policies in education is very poor."(HO)*

These responses raise the fact that poor policy implementation stood as an obstacle to the integration of technology in Business Education. The above statements indicate participant's emphasis on lack of policy implementation as the main challenge to technology integration in teaching and learning. The statements also confirmed that neglecting the contents of the policy document will make it difficult to actualise the dream of fully implementing technology into Nigerian secondary schools. Therefore, the responses highlight poor policy implementation as among the major challenges that face technology integration in secondary schools.

The participants acknowledged that there exists a policy on technology integration in schools including secondary schools. But that until the present nothing has been done to ensure integration of technology in schools. The participants declared that having policies on technology integration alone is not enough to see the implementation fulfilled, but the action is what is needed to ensure that full implementation of technology is actualised in schools.

7.3   LACK OF CAPACITY DEVELOPMENT

In this theme what was found from the data is that lack of training support and staff development programmes, underutilisation of technological resources and teachers' lack of TK and skills, constitute challenges to the technology integration in Business Education teaching in secondary schools in Nigeria.

7.3.1   Teachers' Lack of Technological Knowledge and Skills

In this section, participants' statements reveal that teachers' lack of knowledge and skills contribute to the lack of use of technology in the teaching of Business Education in Nigerian secondary schools. The participants acknowledge that not having the right knowledge and skills

to use technology is among the factors preventing teacher's use of technology in teaching. The participants affirmed that:

> *"For me, I do not have knowledge or skills to operate all these modern technologies apart from my personal cell phone." (RM)*

Another participant shares similar views with regard to the lack of technological skills to operate technology. The participant's view revealed that teachers do not use technology to teach because they do not have the right knowledge to integrate it in their teaching. This is confirmed in what the participant said:

> *"I have not used technology in my teaching before; because I do not have the necessary skills to use the tools."(IM)*

A similar view was expressed with regard to possession of technology knowledge to teach Business Education. The participant stated that most of the teachers in their school do not have any form of TK or skill. The participant declared that:

> *"No not at all … they do not have technology skill or the knowledge including myself … am certain about that because I have not come across any one of them using technology, anyway, we do not use technologies to teach."(NG)*

What can be deduced from the participant's response above is that many Business Education teachers in secondary schools do not possess the necessary technological skills that could enable them to integrate technology in their teaching of Business Education. The first statement depicts lack of necessary technological skills to implement technology in teaching. The second statement indicates that the participants have never attempted to use technology in teaching. However, the third statement revealed a situation where in an entire school no-one had technology skills, and the teachers did not possess any technology knowledge. The participants acknowledge that lack of technology skills is a setback to technology integration, and to effective teaching and learning in the 21st-century education system. The following statement from the focus group discussion aids in confirming the above participants' views with regard to lack of TK to use technology in the teaching of Business Education. A participant when asked "what competencies do you have in technology?" declared that:

"In my school, we are about 25 teachers both in junior secondary and senior secondary sections. Believe me when I say that it's not up to four or five of us that can claim to have technology skills to use modern technologies. There is a massive lack of technology knowledge and skills among Business Education teachers."(FGD 6)

Another participant reported a similar view with regard to not having technology knowledge to integrate technology in teaching and learning. The participant also stated that such discussion is hardly raised in their school either by the principal or head of departments. The participant had this to say:

Personally, I do not have the technological skills or knowledge to operate technology. And this is my first time of engaging in a discussion about technology integration, we hardly talk about such issues in our school." (FGD 7)

Obviously, it is evident that the participants do not have the necessary TK and skills required from 21st-century teachers in other to provide effective teaching to the learners. The statements indicate the teachers' lack of technological skills as well as the further challenge facing technology integration in teaching and learning of Business Education in secondary schools. The statements reveal that among many other things, lack of teacher's technology knowledge is a major key issue in not integrating technology. The participants stated clearly that they do not possess the necessary technological skills to teach Business Education. Also, another participant describes the teacher's lack of technology skill to integrate technology in teaching as a massive loss, as it hinders effective teaching as required in the present teaching environment. This suggests that the majority of Business Education teachers could not offer their learners an absolute and operative teaching environment as the teachers solely depend on chalk and textbooks. The statements suggest that integration of technology into teaching and learning have numerous obstacles to resolve. Participants also acknowledged that they do not talk about things like technology integration most often in their schools, both in staff meetings or in the staff rooms. This suggests that in some schools the issue of integration of technology was not a thing of concern as they claimed in that the challenges facing technology integration were beyond their control. This could be suggesting that some schools have given up hope on technology integration in their schools, and could be indicating lack or break down on working relationships between the ministry of education and schools.

7.3.2   Lack of Training Support and Staff Development Programmes

In this section, the participant's responses indicate a lack of training support and staff development programmes as among the challenges facing the integration of technology in the teaching and learning of Business Education in secondary schools. During the process of transcription, the researcher discovered that participants in this study constantly made remarks which showed that Business Education teachers do not receive adequate training support and staff development programmes. Some participants revealed that they have never received any form of training in terms of technology and that no staff development programme had ever been organised for them to attend. Others indicated that even when such a programme was organised the amount to pay to attend is usually unaffordably high. Participants also indicated that on several occasions they have been promised sponsorship on technology skill development training but that has never happened. From these participants' statements emerged the perception that lack of training support and staff development programmes contributed to the challenges facing technology integration in secondary schools. One participant stated that:

> *"The teachers are not receiving the support they required concerning technology. They should be provided with training assistance or even government should organise a development programme on technology use for teachers. Through such a programme many will learn to use different technologies to support their teaching." (ACC)*

A similar statement was made by another participant with regard to lack of technology training support and staff development program for teachers. The participant emphasised that training is important in teaching profession to enable adequate application of the knowledge obtained in the career. The participant stated that:

> *"We have been promised on several occasions that we will go on a computer training seminar during the last holiday but that did not happen and there was no information why it did not take place. Such training is important because the more the government train teachers on how to make use of technology in the field of teaching, the more the knowledge acquired will be applied in teaching students."(AA)*

Another participant shared a similar view stating lack of support from the government with regard to lack of training opportunities for teachers on technology. The participant suggested that to enable teachers receive training on technology knowledge the government should assist

the teachers either subsidising the price of the training program or make the program free. The participant affirmed that:

> *"The government does not provide support in terms technology training for the teachers. Teachers need support, the government can maybe make the technology training program free or subsidise the price to the amount teachers could afford to pay to attend."(IR)*

From the responses, what is evident is that many teachers do not receive support for technology training as they are supposed to in order to develop their teaching skills. The responses indicate the teachers believe that it is the responsibility of the government to organise training on technology for the teachers. The statements from the participants indicated that the teachers should be provided with training assistance or even that government should organise a development programme on technology use for teachers. The participants' statements depicted that promises had been made to train the teachers on several occasions to attend computer training seminar during the last holiday but that did not happen. Also, the participants' statements illustrate that teachers need support from the government to go on a technology training programme, perhaps the government should make the program free or subsidise the price, to the amount teachers could afford. These views denote teacher's readiness to acquire TK. The focus group discussion captured other participants stated that the PTA is not supporting the schools to sponsor some of their staff members on technology training program or to purchase some technology equipment for the teachers to use in their teaching. The participants had this to say in response to the question "what support do you receive in terms of technology integration and pedagogical use of ICT?" The participant declared that:

> *"We have an association which includes the parents of the learners and the teachers by the name "Parents Teacher Association" (PTA). It is always a big issue any time the subject of installing some technology in our school is being raised in the meeting. They will talk it down and ask you to go to the government because they know we may ask their children to pay a certain amount of money for the purchase of the equipment"(UA)*

Another similar view was with regard to teachers developing their skills. The participants declared that the government as well as non-governmental organisations and the community members was not providing enough support for teachers in that regard. The participant affirmed that:

"There is no support from anyone be it government or the community, or NGOs nothing is forthcoming. Government is not supporting teachers to develop or update their skills and that's the reason students are not doing so well is their academics."(SE)

A similar view was expressed with regard to whose responsibility it was to provide support for teachers training on technology. A participant stated that the government should be responsible to support the schools by training the teachers:

"It is the responsibility of the government to support the schools with technology integration, schools need support such as administrative, technical as well as professional support to ensure technology has come to stay in our schools. After that, the students will be well equipped to achieve the best in their learning."(DD)

From the participants' point of view, the schools had been left alone to carry the burden of technology integration and the training of teachers. What is evident from the participants' responses is that schools do not receive any form of assistance from the community, government and non-governmental organisations. The statements from the participants signify that the schools are poorly supported in the training of its staff members as they do not receive funding for staff development programmes from any source.

Other participants emphasised that the government is not doing their part to assist in the quest to integrate technology in teaching and learning activities. This was evident from the following statements:

"The challenge is that there is no effort from the government to support the schools in realising the dream of integrating technology."(ICJ)

"The government does not support the use of technology, there is no provision of technological facilities that will facilitate teaching and learning. We lack the required facility and personnel in terms of technology. To ensure proper integration we need technical support."(OC)

From the responses it is evident that schools are looking forward to receiving some support from the government, communities and other organisations to achieve their dream of integrating technology in their classroom, and as well as their teachers acquiring necessary technology knowledge. What emerged from the responses is that schools do not receive the

required support that they needed concerning the training of their staff in making sure that technology integration is fully functional. The participants' responses indicated that lack of support is another challenge facing the integration of technology in schools.

The participants declared that the schools did not receive any form of support such as administrative, technological, professional supports, despite that fact that these supports are needed in schools to ensure effective technological integration. The participants' eagerness regarding training in technology use could mean that technology can be a wonderful teaching resource if teachers have access to it. School websites and online learning tools, projectors, digital cameras and computers can be excellent teaching and learning resources.

The participants also reported clearly that many teachers teaching Business Education do not have the right skills and knowledge to use technology in teaching, and they also do not have access to the technology training program or any other development program. Hence the teachers declared that the government should provide a training opportunity for them to develop their technology skills. The participants asserted that lack of access to technology training programmes and other development programmes are the major factors responsible for lack of use of technology in the teaching and learning of Business Education.

The participants acknowledged that technology knowledge and skills are key to successful integration of technology in the teaching and learning of Business Education, and therefore stated that the government should do something to ensure that teachers are trained to use technology in their teaching. The above statements denoted that technology integration in the teaching of Business Education is not attainable if the teachers are not properly trained in that regard. The responses indicate that the training program is needed for equipping the teachers to be able to understand all about the integration of technology and its benefits in teaching and learning classroom.

The participants indicated that there has not been any form of training provided for the teachers to attend that relates to technology integration nor any staff development programme. The participants also declared that the government should provide access for all teachers to receive training on technology, employ computer experts to assist teachers with technology integration. According to the participants' statements, the teachers were willing to go for technology training, but they could not sponsor themselves because of the high cost involved in attending.

The participants indicated lack of support when it comes to training of teachers in the area of technology implementation. Some of the participants declared that there has not been any staff development programme organised to train teachers on how to use technology. One participant stated that the government should try and give all teachers the opportunity to obtain training on computer knowledge and also make it compulsory for all teachers to go for such training. The participants statement highlighted that some of the teachers in the field have never had the opportunity to be exposed to this technology because they do not have the necessary skills. Therefore, they require training and retraining to make them get acquainted with the current trend of using technology in teaching, so if that gap is not bridged it becomes a problem to use technology in teaching.

7.3.3 Underutilisation of Technological Resources

This section explores the views of the study participants on the utilisation of technological equipment/resources in their various schools. The analysis of data indicates underutilisation of technology facilities in schools as among the factors affecting technology integration in Business Education. Participants' views reveal that there are some technological equipment in most schools which are scarcely used for teaching. Analysis of data shows that due to underutilisation of technological equipment in the schools most of the facilities have broken down. The participants affirm that:

> *"In our school here, we have few computers sets, we also have printers and a CCTV camera installed, but they are not being utilised efficiently and not well maintained."* *(HO)*

A similar view was expressed with regard to underutilisation of technology resources and equipment in schools. The participant commented that underutilisation of technology resources causes some of the equipment to break down. The participant affirms that:

> *"Underutilisation of technological equipment sometimes causes the facilities to break down easily. Some of the equipment has been packed here for so many years without being used, they are now being rusted I wonder if they are still sound."(IA)*

Another participant shared a similar view during focus group discussion with regard to the installation of some technological equipment for them to start making use of it. The participant had this to say:

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"Yea ... we have some technology equipment, but we do not use them. They were brought to our school last two years by the government, and they have not been used before; we need them installed for us to be able to use them."(FGD 6)

Another similar view supports what other participants stated above with regard to underutilisation of technological facilities. The participant declared that some of the facilities are not being put into proper use but rather they are locked up in storerooms. The participant had this to say:

"Some years ago, the government brought some computers to our school, till this moment the computers are locked up in our storeroom by the principal without effectively utilised."(FGD 6)

From the responses above, it can be deduced that technological facilities and resources are not properly utilised and taken care of in some secondary schools. The teachers' statements illustrate the underutilisation of technology equipment that is needed in their professional field like computers, printers and CCTV cameras. The participants' statements depicted a lack of maintenances and not knowing what the equipment could be used for. The participants declared that the facilities break down as they have been packed for so many years without being used. From the participant's views, it depicts a situation where technological equipment was left unused for years. The statements from the teachers demonstrated that computers are locked up in our storeroom without effectively utilising them. The participants' responses indicate that technology integration is not taken seriously in most secondary schools.

Additionally, the above reactions illustrate that if technology integration is really considered important in schools the available resources will be properly taken care of and well utilised. The statements denoted a lack of understanding of what was to be done with the available resources at the disposal of the school, and it is due to the teachers' lack of TK. The focus group discussion captures another participant's view on underutilisation of technological equipment available for the teaching of Business Education in secondary schools. The participant emphasised the issue of not utilising technologies available to the schools:

"The few available technologies here in our school are kept in a secluded place by the principal, even teachers are not allowed to make use of them as well as the students, a printer is available, yet we travel a mile to print at a cybercafé."(FGD 1)

Another extract from the focus group discussion depicted what causes underutilisation of technology resources in the schools.

> *"The problem is that the few available are not adequately utilised, nobody is making use of them, neither the teacher nor the students. So many times, we have to go to cybercafé to print or fax documents."(FGD 7)*

Another comment from the focus group discussion emerged. One participant commented that it did not really matter if the equipment was old and outdated or new, that teaching material should be properly taking care of as they in one way or the other are relevant in the teaching activities.

> *"Irrespective of whether the facilities available are outdated or not they still remain teaching resources/materials and should be used and maintained."(FGD 4)*

What is evident from the responses is that there are issues of underutilisation of technology facilities in the schools. The participant's responses indicate that schools may not know exactly what they want from technology integration. According to the participant's declarations some schools underutilise technology facilities at their disposal which could be due to lack of proper knowledge of what should be done with the facilities.

The participants' responses also indicate that some technology facilities in schools are outdated and out of use. The teachers believed that all the parties that should be involved in promoting the integration of technology in teaching and learning classrooms, which included the government and school managers are not doing what was expected to ensure full utilisation of technology equipment in the schools. The participants' responses show that much has not to be done to ensure that all technology facilities and resources are in full use. The participants felt that more should be done to secure and facilitated proper use of technology in teaching and learning.

Participants also recounted how some principals took custody of some available technologies in their schools and kept the equipment in a secluded place where the teachers neither have access to nor make use of the resources for their teaching. The participants asserted that teachers and students sometimes had to travel miles away from their schools to print or fax documents at a cybercafé, whereas in their various schools such facilities are available but are

not functioning. This suggests that there is serious underutilisation of technology facilities at secondary schools in Nigeria.

7.4   TEACHERS' BELIEFS AND RESERVATIONS

In this section, analysis of data reveals that participants' views do not only indicate underutilisation of technological resources as a factor that disrupts technology integration but also personal beliefs and misconceptions about technology integration in teaching have been identified as among the major factors affecting the integration of technology in Business Education. The data indicates a contradiction in teacher's beliefs about the relevance of using technology to teach. The qualitative data analysis reveals that the teachers believe that technology brings distractions in the classrooms, and that technology is unstable to rely on.

7.4.1   Technology Brings Distractions

To actualise the full implementation of technology integration in education, teachers' attitudes towards technology are significant. Generally, teachers agree that technology integration into teaching and learning of Business Education constitute a valuable tool that could assist to improve students' academic attainment. However, analysis of data reveals that even though teachers recognise the importance of introducing technology integration in the teaching of Business Education, some teachers tend to be less positive about the full implementation of technology and less convinced about its potential not to disrupt teaching and learning. One participant affirms that:

> *"The little I know and have heard about technology integration, it will be very difficult to use technology in our school context, because of the distractions it brings to the classroom."(NG)*

Another extract from a face-to-face interview depicts technology integration as a distraction to teaching and learning. The participants stated that because of availability of technology integration in the classroom, students would be busy with their cell phones, chatting on WhatsApp, Facebook, watching movies, answering calls in the classroom while lessons are going on because they have access to the internet.

> *"Technology brings distractions to the classroom, a teacher will be teaching and students will be busy with their cell phone, chatting on WhatsApp, Facebook, watching movies, answering calls in the classroom while lessons are on-going." (AA)*

Another participant shared a similar experience with regard to technology integration and the distraction it brought to the teaching and learning classroom:

> *"There is a lot of cases of disruption of teaching and learning that goes with the use of technology to teach. For instance, we have had experiences with students doing different things with their cell phones while teaching was going on in the classroom."(ICJ)*

A similar view from another participant stated that technology integration brought distractions to teaching, because teachers were required to change their teaching philosophies to be able to accommodate new ideas of teaching which will be very difficult to do. This is what the participant said:

> *"I think technology integration is a distraction to teaching and learning because to implement the idea using technology to teach will require a teacher like me to change my teaching philosophies and strategies to accept new ideas of teaching which is very difficult to do."(OC)*

The above statements indicate diverse perceptions the participants have concerning the integration of technology in teaching and learning of Business Education. The participants' views show some teachers believe that technology integration in the classrooms brought a lot of distractions. The statements depict technology integration to be a very difficult idea to implement in the Nigeria secondary school context, because of the distractions it brings to the classroom. The teachers' views illustrate the integration of technology in Business Education classroom as an idea that will not work

The teacher's statement claimed that there are always cases of disruption of teaching and learning that accompany the use of technology to teach in the classroom. The statements from the participants differ in their perceptions of the level of distraction technology integration brought in the classroom. According to the teachers for them to be able to implement technology in teaching and learning, it requires a teacher to change teaching philosophies to accept new ideas of teaching. The participant describes technology integration in Business Education as a very difficult idea to achieve.

The above statements from teachers show that they believe that technology integration can bring distraction into teaching and learning. The response above reveals that the teachers

considered actual technology integration as a new set of ideas that have come to alter their long-lasting philosophies on teaching and learning which is hard to accept, will bring some sort of distraction on how teaching and learning are normally carried out. The participants' views also indicated that teachers believe technology integration is about making teachers inactive and irrelevant in the classroom. The analysis of participants' responses reveals teachers believed that integrating technology into teaching and learning meant giving classroom control to the students to do whatever they desire, making teachers passive participants in the classroom.

From the data above, what is evident is that teachers have reservations about technology integration in the classrooms, as teacher believes that technology brings distractions. Also, the response indicates that the teachers do not understand the main purpose of integrating technology in the classroom. What is evident is that there is a misconception in teacher's beliefs about technology integration in the teaching and learning of Business Education in Nigerian secondary schools.

7.5   DISCUSSION

This chapter presented the outcome of qualitative data analysis of face-to-face interviews and focus group discussions. From the analysis, what emerged is that there are numerous factors that prohibit full integration of technology in the teaching of Business Education in Nigerian secondary schools. The analysis of data reveals the following as affecting technology integration, lack of capacity development, teacher's beliefs/reservations, and contextual dynamics.

The findings of the study show that due to the lack of necessary instructional technologies teachers are not able to integrate technology in their teaching to provide effective teaching that the learners desired in learning Business Education. The teachers could not provide a learning environment that would motivate the students into learning. For example, there are lack of technologies such as projectors, computers, Wi-Fi and scanners in Business Education classrooms. Additionally, from the analysis it was revealed that teachers lacked access to technology training programmes and other development programmes, there was also poor technology policy implementation, as well as poor electricity power supply to schools. These are factors that participants of the study referred to as major factors responsible for the teachers' lack of use of technology in the teaching and learning of Business Education in secondary schools.

The outcomes of the study analysis are in line with previous studies that have been conducted on technology integration. Studies indicate that the above-mentioned factors prohibit technology integration in schools. Anderson and Maninger (2007) asserted that barriers in the form of lack of resources (knowledge and skills, available technology, time, technical and administrative support and lack of will due to incompatible beliefs about technology and teaching prevent the integration of technology by in-service teachers). Olutola and Olatoye (2015) argued that the biggest challenge is on the training of teachers to use technology in their teaching. Similarly, Olutola and Olatoye (2015) believed that secondary school teachers in Nigeria were not trained to make use of some of the technological equipment and that it affects teaching and learning activities massively in secondary schools.

These outcomes of the analysis are in line with Olutola and Olatoye (2015) who emphasised that teachers lacked proper training to integrate technology into their teachings. This is evident as no technological programme has been put in place by the government to help train teachers on technology integration in the classrooms. According to Haliso (2011), lack of organisational commitment towards ICT acquisition constituted the highest barrier towards ICT use, while lack of ICT strategy, erratic power supply and lack of funds significantly affected ICT use.

However, Business Education is a field of education in Nigeria that provides lifelong education which agrees with the Nigerian educational philosophy. Business Education involves teaching students the fundamentals, theories and processes of the business. Education in this field occurs at several levels in Nigeria, including secondary education and higher education or university education. (Nigerian Ministry of Education, 2015). The field of Business Education is also concerned with the development of skills and knowledge needed in order to enable an individual to function effectively. Hence, the government and the Ministry of Education in Nigeria should endeavour to provide the Business Education teacher with all requirements that would enable full integration of technology in Business Education.

7.6   CONCLUDING REMARKS

This chapter has presented the second part of qualitative analysis of the study. The views of Business Education teachers with regard to integration of technology in Business Education were identified and grouped into new themes and subthemes. These new theme and subthemes gave rise to the new results that are essential to this chapter and to understand the issues about technology integration in the teaching and learning of Business Education in Nigerian

secondary education. The main outcomes of this chapter are lack of capacity development, teacher's beliefs/reservations, and contextual dynamics.

CHAPTER EIGHT:

FINDINGS AND DISCUSSIONS OF TECHNOLOGY INTEGRATION

8.1   INTRODUCTION

The preceding three chapters presented the analysis of both the quantitative and qualitative data collected from the study participants. The outcomes of the data analysis revealed that the participants had differing perceptions regarding technology integration in Business Education teaching and learning in Nigerian secondary schools. During the data analysis, numerous factors influencing technology integration in secondary schools in Nigeria were identified. The purpose of this chapter is to present and discuss the findings of the study. Also, the discussions in this chapter are organised according to each key research question, so as to answer the research questions stated previously in Chapter One. The discussion in this chapter will seek to determine the extent to which the outcomes of analysis can be used to explain the technology integration in secondary schools in Nigeria in line with the literature reviewed in Chapter Two.

8.2   RESEARCH QUESTION 1

What technologies are being used in Business Education teaching and learning in Nigerian secondary schools?

The reason for the above research question was to identify technologies used in the teaching and learning of Business Education in Nigerian secondary schools. According to Madu et al. (2015), the consequence of lack of technologies in the teaching and learning of Business Education programme is the challenge of producing the needed manpower for the world of work. The authors argue that for technology to be successfully used and deliver the goods expected of it such as making secondary school Business Education graduates global workers, technology should be made part of the educational delivery of learning. To determine the technologies that the teachers use in teaching Business Education, the teachers were asked the following question: "What technologies have you used and how do you facilitate technology integration throughout your teaching?" In this study, to properly determine the technologies teachers use in their teaching, the technologies were categorised into technology (technology tools), technology applications; and technology web applications. The participant was supposed to respond to statements to show the different technologies and the frequency level

of use, and the level of proficiency use of the technologies in their teaching of Business Education.

8.2.1   Technologies Used in Teaching and Learning of Business Education

From the face-to-face interviews, the teachers stated that they did not integrate technologies in their classroom teaching and learning because they did not have access to necessary technologies like computers, Wi-Fi, scanners or projectors in their schools. They said this when responding to the question: "What technology have you used in the teaching of Business Education subjects?". Their responses suggested that the schools do not have necessary technologies for teachers to use in their teaching. Some teachers who are computer literate were somehow eager to integrate technology in their classrooms. Even these teachers mentioned during the interview that some of them are knowledgeable in technology use but cannot practice their skills because their schools do have the technologies. Also, the participants mentioned during the interviews that they travel miles away to print and photocopy documents.

Similarly, in Chapter Five, the quantitative analysis results on frequency level of use of technologies indicates that majority of the participants do not use technologies in their teaching of Business Education subjects. The frequency analysis results indicate that majority of the participants do not have access to both technologies tools, applications, web applications at various schools. In Chapter Five, Table 5.1 revealed that more than 60% of the respondents do not integrate technology tools (computer, digital cameras; Scanner; LCD Panel or data projector) on a daily basis. Also, the frequency analysis results of technology applications in Chapter 5, (Table 5.2), indicated that the majority of the participants do not use technology applications (Word Processing, Database, software (GIS, CAD, PASTEL), Spread Sheet, Graphics program, PowerPoint), in their teaching of Business Education. The results show that Word Processing alone had the highest percentage of respondents who never used it (93.5%), and only 1.1% percent of the respondents indicated using it every day.

Additionally, the frequency analysis results of web applications in Chapter 5, (Table 5.3), shows that the majority of the participants do not use web applications (Website development, Electronic references, Discussion group Email, the Web, Assistive Technologies), to teach Business Education subjects. The frequency results on Web applications, show that 7% of the participants have access and use the internet on a monthly basis, 30% of the participants use the internet once or twice a week, 34% of the respondents have access and use the internet every day, while 29% of the respondents do not have access and do not use internet. The results

of the analysis indicated that 75.0% of the teachers do not integrate electronic references; while 6% of the participants use it every day, and 10% use it once or twice a week. This again suggests the lack of availability of technologies in their schools (Olutola & Olatoye, 2015). Seemingly, non-availability of technology in teaching and learning has never been a concern in the secondary schools. The participants indicated that in their classrooms they have never integrated technology in their entire teaching career. The implication of the above discussions is that there is lack of relevant technologies to teach Business Education in secondary schools in Nigeria.

8.2.2   Discussion

The implications of the above discussions in the teaching and learning of Business Education in secondary schools would be that both teachers and learners may not have the opportunity to experience all that integrating technology has to offers. Also, the teachers teaching Business Education in secondary schools may not get the opportunity to practise and improve their technology skills. The teachers may not be able to provide effective teaching to their students as they may not be able to search for information to improve the content given to the students due to lack of relevant technologies to teach Business Education subjects.

The students may also be affected by lack of relevant technologies in the schools. They may be deprived of the chances to improve their technology skills to experience active learning which encourages learners into being lifelong learners. One of the important aspects of technology integration is that it encourages active participation during teaching and learning activities (Anyanwu, 2014). Also, technology integration is important in teaching and learning of Business Education because it changes both students' and teachers' expectations from traditional ways of learning and teaching.

Having access to the necessary technologies in the schools leads to skill acquisition and development for both the teachers and learners (Umoru, 2012). On the other hand, lack of relevant modern technologies in the schools will lead to teachers and learners not acquiring and developing their skills, thereby leading to lack of technology integration in the teaching and learning of Business Education in secondary schools. Obviously, it is not always easy to use technologies without understanding their basic functions properly. Technologies need to be made available in the schools so that the teachers may have access to them; practise them and master their basic functions before they can integrate them into the teaching of Business Education. This will help the teachers avoid complicating technology tasks in the teaching and

learning classrooms. It is evident from the discussions that teachers face serious lack of technology facilities which hamper their effort of integrating technology like electronic books, video clips, charts, that are related to Business Education, provided that the schools are connected to the internet.

Nevertheless, in Chapter Five, (Table 5.3), on analysis results of web applications, the results show that 7.2% of teachers are using the internet on a monthly basis. It is not certain what they use it for, whether they use it to search for teaching resources/materials only or other things. This is because there are too many things that one can do online that are not related to teaching and learning. The teachers might be using the internet for their personal issues as it was not the schools that provided them access to the internet according to the participants: "Although, some of us we have our personal laptop but no internet for browsing and there is no electricity to power it at school". However, the provision of internet and Wi-Fi network access to the internet could be considered a good start to the integration of technology. At least teachers would be able to search the internet for additional information to supplement what the students have in their textbooks using their personal cell phones. The absence of free internet access means that teachers would have to use their personal data bundle to research information – a major disincentive.

In conclusion one can argue that the findings are very much in keeping with existing literature, which has mostly identified that lack of technological resources as affecting technology integration in the teaching and learning of Business Education in Nigerian secondary schools. Akaeze, (2014) stated that the issue of lack of technological teaching aids has generated an ongoing argument which many identify as a link to the reason learners are not doing as well as expected in their education. According to Olutola and Olatoye (2015), in some secondary schools in Nigeria equipment such as computers, projectors, software and internet are not available for proper utilisation. Similarly, new technologies in teaching and learning posed many challenges to the teaching and learning of Business Education in Nigeria (Achugbue, 2011). This means that in Nigerian secondary schools teaching and learning Business Education are carried out with a lack of needed modern technological teaching aids. In Chapter 5 (Tables 5.1, 5.2, 5.3), the results of the quantitative analysis indicate that a small percentage of teachers are using technologies in their teaching, and also the qualitative analysis in Chapter 7 reveals that some of the teachers are already using their personal cell phones to browse the internet for information. Hence, making available other technologies like (desktop computers,

laptops, internet-Wi-Fi) to the teachers could motivate them to integrate technologies into their teaching activities.

8.3   RESEARCH QUESTION 2

What challenges are being encountered with technology integration in the teaching and learning of Business Education?

The purpose of the above research question was to understand the challenges encountered with integration of technology in the teaching and learning of Business Education in Nigerian secondary schools. According to numerous authors, integration of technology in the teaching and learning classrooms is faced with numerous challenging factors which include teachers' lack of technology knowledge and skills, lack of training support and staff development programs; teacher beliefs; poor electricity supply; poor technology policy implementation strategy; and underutilisation of technology resources. In the following sections, discussions will be presented to ascertain the extent to which the factors listed above-influenced technology integration in the teaching and learning of Business Education in Nigerian secondary schools.

Although, based on the findings of the study, there was hardly any use of technology in the teaching and learning of Business Education, there were a few teachers who did use the technology, and from the point of view of the teachers who have an intention to use the technology the following challenges are encountered.

8.3.1   Lack of Training Support and Staff Development Programs

Brand (1998), asserted that despite continuous increased access to related technology for students and teachers in schools; schools are still experiencing difficulty in effectively integrating technologies into existing curricula. Studies indicated that the lack of teacher training on technology integration is one of the greatest roadblocks to integrating technology into a school's curriculum (Brand, 1998). Therefore, there seems to be much that needs to be done in Business Education teaching and learning in secondary schools in Nigeria concerning access to training opportunities and staff development programmes. Perhaps the starting point would be to explain the need for training the teachers in technology integration. Perhaps the schools may be able to afford to integrate technology in the classroom, but there is a need also to support the teacher to receive necessary technology training and other needed development programs. It would be needless to provide technologies in the schools without training the teachers on how to use them. It is very important to train the teachers on how to make use the

technology, inform them on the need to use technology in their teaching, train them to engage their learners and encourage them to integrate technology more often in their classrooms.

According to the UTAUT construct of facilitating conditions (Venkatesh et al., 2003), the constructs stated that relevant conditions should exist in any organisation in determining the intention of technology usage. Facilitating conditions, such as availability of technology training programs, technical support, as well as development programs will play a major role in determining user technology acceptance and usage behaviour (Venkatesh et al., 2003). On the other hand, the quantitative analysis results in Chapter 5, section 5.9, on analysis of facilitating conditions revealed that there is a lack of facilitating conditions to enable the use of technology in the teaching and learning of Business Education in the secondary schools. Below is the analysis table of facilitating conditions.

Table 8.1:   Distribution of overall participant's responses on UTAUT constructs

	PE	EF	SI	FC
Mean	4.79	4.87	4.49	1.60
Median	5.00	5.00	5.00	1.50
Mode	5	5	5	1
Std. Deviation	.676	.422	.750	.741

Performance expectancy (PE), Effort expectancy (EF), Social influence (SI), Facilitating conditions (FC)

The above table shows that the majority of the participants indicated lack of facilitating conditions to integrate technology in their schools, as indicated by the means and standard deviation. As discussed in both Chapters Three and Five of this study, facilitating conditions are referred to as the degree to which an individual believes that an organisation and technical infrastructure exist to support his or her use of the technology (Venkatesh et al., 2003). In Chapter Five (Table 5.9), analysis results show that only 12.5% of the respondents indicated that facilitating conditions exist to enable technology integration in their schools. The results signify difficulties and challenges with integration of technology in secondary schools. Since the teachers who are supposed to assist the learners in mastering the use of technology in their studies do not have the enabling conditions to integrate technologies as they are supposed to,

definitely speaks volumes about the difficulties of integrating technology in the teaching of Business Education.

The responses from both focus group discussions and face-to-face interviews indicated that the participants do not have the necessary resources, infrastructure, and support to use/integrate technology in their teaching of Business Education. Also, it is important to state that the extent of facilitating conditions that exist in any organisation will determine the level of technology integration in that particular organisation. Therefore, the facilitating conditions that will assist the teachers to integrate technology are "fast internet connection, easy access to the IT centre during breaks and after school, and availability of an IT technician" (Mudaly, 2012, p. 93). As shown in Table 5.9, in Chapter Five, the majority of the respondents believed that organisational and technical infrastructure does not exist to support technology integration in their various schools. Therefore, the results from the four categories reveal that lack of technical infrastructures, fast internet connection, and easy access to the IT centre, training programmes and availability of an IT technician as reasons teachers are not integrating technology in their teaching.

The qualitative analysis result in Chapter Seven reveals that many Business Education teachers do not integrate technology in their teaching as a result of lack of training on technological use. Even during the face-to-face interviews teachers stated categorically that among the many challenges facing technology integration in the school, lack of training support and staff development programmes is the most worrisome. This means that even if there is technology in the schools, it is possible that the teachers would never integrate it into their teachings. Also, it could be possible that the teachers would never develop the skills required for technology integration if technology training opportunities are not made available to them. And if this should be the case with the teachers, it is possible that the teachers teaching Business Education in Nigeria would not appreciate all the potential benefits of technology integration. The learners would be affected because they may not be given opportunities to experience the numerous ways that technology can be used. The quantitative data analysis in Chapter Five (Table 5.7), indicates that most of the participants believe that using technology will help them to attain gains in job performance (Venkatesh et al., 2003). Regrettably, the teachers have not received any technology training to use technology in their teaching. Therefore, their response will only remain as a wish. The implication of the above discussions is that, to actualise the dream of integrating technology in the teaching and learning of Business Education, the teachers should

be provided with training support and assistance or even government should organise a development program on technology use for teachers. Through such program many teachers will learn to use different technologies to support their teaching.

Literature has shown that the most cited reason for lack of implementation of new technology is lack of professional development (Okenjom, et al., 2016; Birch as cited in Drexler, Baralt, & Dawson, 2008). Okenjom et al., (2016) assert that teachers in Nigerian secondary schools need adequate training and education on the integration of technology for reliable, appropriate and effective teaching and learning. This means that for the integration of technology in the teaching and learning to produce what it talked about in Business Education, the teachers teaching Business Education subjects need to receive adequate technology training and support that they need. Support could come from various places from the community members, from the PTA association, and as well from the government to ensure that adequate training and development are giving to the teachers for effective teaching to be given to the learners.

Ejinkeonye and Usoroh (2016), recommended that workshops, conferences, seminars, in-service training and improvement programs should be organised by schools to train teachers on ICT utilisation, among others. The Business Education teachers need training and any other available developmental programme on technology use in teaching. The results of this study corroborate those of Ugwuogo, (2013), who stated that lack of training for the teachers and students to use the equipment has been identified as among the challenges that face Business Education in Nigeria. Additionally, the results of this study agree with those of Ajamu (2016), who asserts that lack of technology competent teachers in the Nigerian secondary schools is a huge factor that militates against the integration of technology. A majority of the teachers do not have any training in technology skills, therefore the teachers see technology integration into teaching and learning as alien. Olutola and Olatoye (2015) identified that the biggest challenge is on the training of teachers to use technology in their teaching. And argue that many secondary school teachers in Nigeria are not trained to make use of some of the technological equipment. This affects teaching and learning activities massively in secondary schools (Olutola and Olatoye, 2015). Therefore, it could be concluded that, in secondary schools in Nigeria, teachers experience lack of support for technology training and in professional development, such as workshops, conferences, seminars, in-service training and improvement programmes for technology integration.

Although the government and the school managers may have the best intentions towards the integration of technology in schools, it looks as if they have not yet considered that training of teachers on technology integration as a priority. As stated above regarding UTAUT, there are conditions that need to exist to enable individuals or groups to use technology. For instance, facilitating conditions have to be available to enable an individual to believe that an organisational and technical infrastructure exists to support the use of the technology (Venkatesh et al., 2003; Ahmad, 2015). In the case of Business Education teachers in Nigerian secondary schools, there is a lack of facilitating conditions to support integration of technology in their teaching.

8.3.2 Teacher's Lack Of Technological Knowledge And Skills

To determine the participant's TK and skills, respondents were asked to indicate their level of knowledge of using different technologies. The quantitative analysis results in Chapter 5, tables 5.6.1; 5.6.5; 5.6.6; and 5.6.7 revealed that majority of the respondents had never used technology in their teaching of Business Education, and they also do not know how to integrate different technology in their teaching. It was revealed during the quantitative outcome of participant's response to the comment "*I know how to solve my own technical problems*"
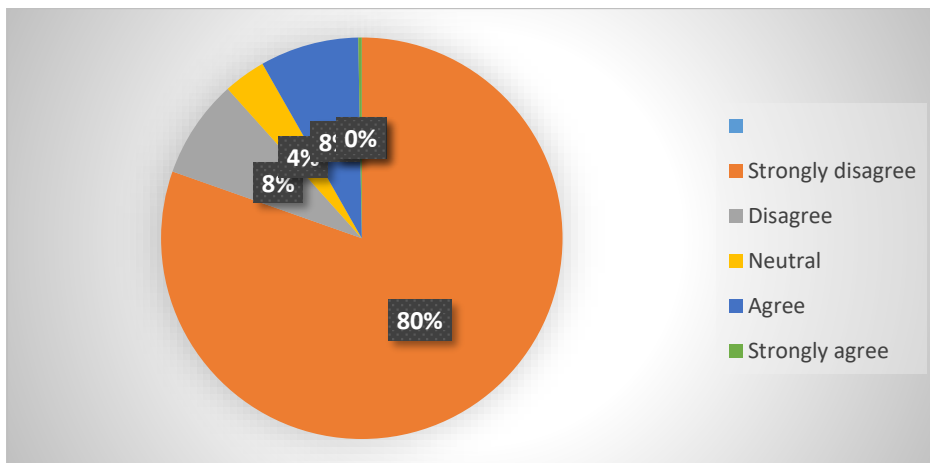
Diagram 8.1: Teachers' responses to the comment "I know how to solve my own technical problems

The above diagram indicates that 80% of the respondents do not know how to solve their own technical problems. Similarly, the participant was also asked to respond to the comment "I have the technical skills I need to use technology". The results show that majority of the participants do not have the needed technical skills to integrate technology in their teaching of Business Education.
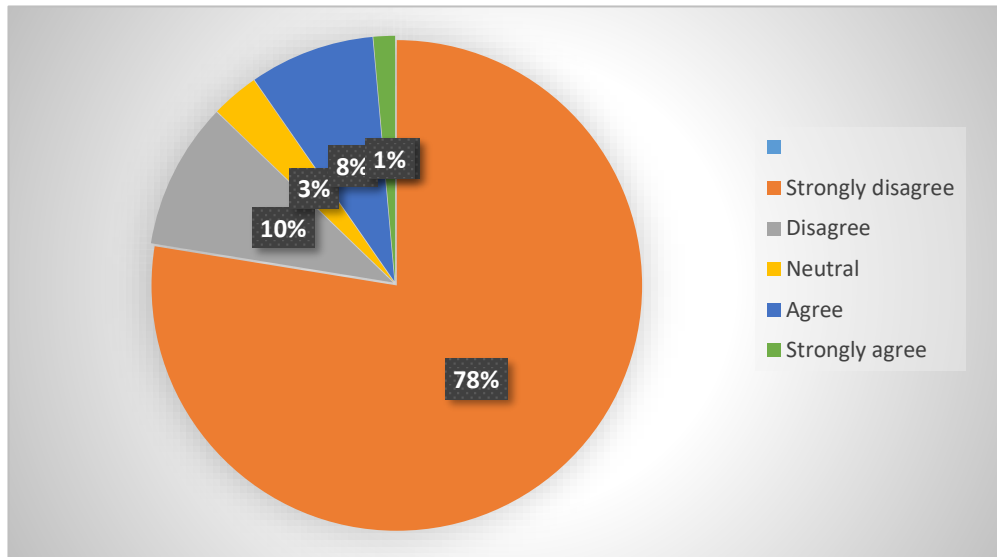
Diagram 8.2: **Teachers' responses to the comment "I have the technical skills I need to use technology".**

The above diagram reveals that only 1% of the respondents indicated that they have the technical skill to use technology.

Additionally, the quantitative results in Chapter Five, section 5.2.2 on teachers' proficiency level of technology use. indicate that the majority of the teachers lack proficiency to use technologies in their teaching of Business Education in secondary schools. Also, in Chapter Five (Table 5.5), the results of the teacher's proficiency level of technologies (tools, applications, web applications) shows that more than 50% of the respondents indicated poor proficiency in three of the five tools investigated.

Additionally, quantitative analysis results on the proficiency level of web applications show that the majority of the participants do not possess technological skills to use the applications in their teaching of Business Education. Table 5.6, in Chapter Five shows the quantitative analysis results of the teacher's proficiency level of web applications. Among the web

applications investigated, more than 65% of the respondents indicated no proficiency in three of the six applications investigated. Table 5.6 shows that among the Web applications investigated, the respondents indicated that the majority of them do not have proficiency in using Web technologies. Likewise, the results of the qualitative analysis show that teachers acknowledged the lack of technology knowledge and skills. Also, during the focus group discussions, the teachers indicated that there is a massive lack of technology knowledge and skill among Business Education teachers in secondary schools. Even during one of the focus group discussion, teachers stated that in Nigeria it is usual to go to a school and only to find that among all the teachers in that school none is computer literate. This implies that there is a massive lack of technology knowledge and skills among Business Education teachers.

The above discussions are a clear indication of the challenges influencing technology integration in secondary schools. Literature has indicated that teacher's technology knowledge and skills can play a decisive role in the implementation and use of technology in teaching and learning (Sulungai et al., 2012).

From the above statements, it emerged that teachers lack technology knowledge and skills to use technology in teaching Business Education. In fact, the participants acknowledge that not having the right knowledge and skills to use technology is affecting the way they teach their students Business Education. Unfortunately, there is no guarantee that the teachers will acquire the necessary knowledge of technology use in the near future. The idea of having technology knowledge and skills seems not to be a matter of concern with most of Business Education teachers. It could also be possible that the need for teachers to acquire technology knowledge and skills to enable technology integration has not yet been developed in Nigeria since teachers can still teach their subjects and accomplish their teaching objectives without the use of modern technologies.

Literature indicates that teachers who are trained technologically and have acquired TK and skills develop a more positive attitude towards technology integration in their teaching (Becker et al., 1999; and Gobbo & Girardi, 2001). However, Olutola and Olatoye (2015) suggested that teachers should be encouraged to acquire technology skills and knowledge and make it a priority to integrate technology in their teaching. The teachers need to be trained to acquire knowledge of integrating technology in their classroom teaching. Olutola and Olatoye (2015) believe that secondary school teachers in Nigeria are not trained to make use of some of the technological equipment and that it affects teaching and learning activities massively in

secondary schools. Teachers teaching Business Education need subject-specific training to enable them to gain technology knowledge and master the skill of integrating technology in their subject area. Business Education teachers' lack of TK and skills is capable of impacting negatively on the integration of technology and in the teaching of Business Education.

The literature review in Chapter Two of this study, indicated that teachers' lack of technology knowledge and skills are barriers to the integration of technology (Ertmer, 1999). Dexter and Anderson (2002) indicated that teachers' lack of technology skills poses a greater challenge to technology integration in the classrooms than any other factor. Anderson and Maninger (2007) suggested that barriers in the form of lack of TK and skills prevent the integration of technology by in-service teachers.

The quantitative analysis results on TK emphasised the fact that a majority of the respondents had little or no knowledge of how to integrate technology in their classrooms. Olutola and Olatoye (2015) identified that the biggest challenge is on the training of teachers to use technology in their teaching. According to the authors, many secondary school teachers in Nigeria are not trained to make use of some of the technological equipment. Olutola and Olatoye (2015) believe that a lack of teacher's TK affects teaching and learning activities massively in secondary schools. Hence, it could be concluded that with respect to TK and skill, indeed, Business Education teachers in Nigerian secondary schools lack such knowledge and skill. This then confirms the finding in the literature that Business Education teachers in secondary schools in Nigeria do not have TK and skill to use in their teaching because they are not trained to make use of the technological equipment in their teaching.

8.3.3   Poor Electricity Supply

Participants were asked to indicate if technology integration facilitating conditions such as an organisation and technical infrastructure exist to support the use of technologies in their schools (Venkatesh et al., 2003). The majority of the respondents indicated they strongly disagreed on the facilitating conditions in their schools. Additionally, while schools are supplied with technology, there is a need to provide them with reliable electricity that would encourage teachers to use the technology for the benefit of both the teacher and students.

Also, during the focus group discussions the participants highlighted a lack of constant electricity supply to their schools as a major challenge that the schools face on a daily basis. The participants expressed dissatisfaction about the lack of electricity supply to their schools.

At times in some schools, the teachers end up cancelling some of the tasks they gave to their students to do on a computer due to lack of electricity to power the computers. Even during focus group discussions, the teacher commented that the main challenge they are facing in using technology in their teaching is the lack of power supply. This means that unavailability of power supply to the school is consequential to not using technology tools.

Undoubtedly, when teachers and student face such situation more often, it may lead to avoidance of technology integration in their teaching activities as well as in the classroom. Furthermore, the likely outcome of such situations is that teachers would develop a negative attitude towards including the use of technologies in their lesson planning if they know that there would be no electricity to use the technologies. The teachers would also avoid giving the learners activities that may warrant the use of technologies to avoid the learners being stranded and avoid delay of submission of s task due to lack of electricity.

Studies indicate that in Nigeria poor electric power supply is among the major factors responsible for poor technology integration in schools. According to Haliso (2011), erratic power supply constituted the highest barrier towards ICT use. According to Write (2014, p. 1), it is a fact that until power is widely available, reliable and affordable for many in Africa and elsewhere, educational technology uptake will be slow. However, the provision of reliable and the affordable power supply itself could make a considerable contribution in encouraging teachers to use the technology in their teaching activities. The absence of electric power supply may likely bring down the number of teachers who may feel prepared and willing to use the technology. It is possible that in Nigeria the percentage would be even lower since the teachers themselves would feel that it is not their fault that electricity was not provided.

Additionally, it is even possible that the teachers may try to do away with any technology integration in the subject curriculum. This may be the case as during face-to-face interviews the responses reveal that some schools hardly had electricity and therefore chose not to venture into integrating technology to avoid constant disruption of teaching and learning as a result of not having electricity. Without electricity supply in the school teachers may not be encouraged to use the technology. Teachers experience inadequate electric supply in the schools because the schools do not have any arrangements in place to provide generators that would power the technological gadgets. It could be possible that teachers may decide to avoid using technology to avoid any form of disruption.

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The findings of this study are in line with Umoru (2012), who argued that there are several barriers to the use of ICTs in teaching and learning Business Education in Nigeria which include lack of electricity supply in the schools. The implications of this result are that it is important to include the provision of electricity when planning for technology integration in the schools because with electricity the technology equipment and resources will not work.

8.3.4   Underutilisation of Technological Resources

In the focus group discussions and face-to-face interviews, the teachers stated that some of the technological equipment and resources are not well utilised in their schools or that some of the technological resources and equipment are not well maintained. This suggested that available technologies in the schools are underutilised.. The quantitative data results showed that a large number of teachers indicated a lack of facilitating condition 2. Facilitating condition 2 focuses on investigating the respondents' degree of agreement that there is institutional support for technology implementation, for instance, having technicians to manage and repair faulty technology tools.

In Chapter Five Table 5.9 illustrates that majority (86.4%) of the respondents strongly disagreed that there was institutional support for technology implementation in their various schools. Underutilisation of technology resources in the schools could hamper the integration of technology, and might also limit the practice and use of technology in the field of Business Education in secondary schools (Imogie, 2002). Therefore, in order to ensure full integration of technology in the teaching and activities in the secondary schools, the educational institutions should develop an innovative approach shaped by a proper planning process that would embrace maintenance and full utilisation of technologies in the schools, and also if they want to keep track of changes in technology and get up to date (Gülbahar, 2007). According to Achugbue (2011), the reason many schools in Nigeria are lacking modern technological teaching aids is that they do not give adequate priority and attention to the acquisition and utilisation of new instructional technologies. The face-to-face interview and focus groups discussions revealed that some of the technological tools in the schools are not being used and in some schools, the tools are not looked after or being maintained. The participants' responses indicated the underutilisation of technology facilities as contributing to the challenges of integrating technology in secondary schools. During the face-to-face interviews, the teachers commented that in their respective schools there is equipment like computers, printers and a

CCTV camera installed, but the technologies are not being utilised efficiently and are not well maintained.

The discussions above indicate that most secondary schools that have technology equipment are not provided with technicians to manage and repair faulty technologies, to ensure that they are up and running at all times. Business Education teachers are not technicians and would not be able to repair or service the technology facilities in their schools whenever they are not functioning. Apparently, teachers could be discouraged from using the technologies to teach by these challenges.

Therefore, it is very possible for the teachers to return to the traditional methods of teaching to avoid all the challenges of integrating technologies and as well as the disruptions associated with the use of technology in teaching and learning.

The literature review (Chapter Two) revealed that in Nigerian secondary schools, equipment such as computers, projectors, software and internet are not available for proper utilisation. In other words, the available technologies are not in a condition to be used for teaching and learning. It is, therefore, most likely that some of the technological facilities present in Nigerian secondary schools are mostly outdated.

It is highly possible that in a school with no clear strategy/plan for wear and tear of technology equipment, teachers are likely to avoid using the equipment so as to avoid being labelled or accused of not handling the equipment with care (Gülbahar, 2007), The reason many schools in Nigeria are lacking modern technological teaching aids is because they do not give adequate priority and attention to the acquisition and utilisation of new instructional technologies (Achugbue, 2011).

Moreover, as indicated in Chapter Five, many factors are responsible for the underutilisation of technological facilities in Nigerian secondary schools. Okolocha and Nwadiani (2015), revealed that few available ICT resources are rarely utilised in the teaching of Business Education. Perhaps the underutilisation of available technology in the secondary schools could be as a result of lack of technology skills among the teachers, or to avoid being labelled or accused of not handling the equipment with care (Gülbahar, 2007). If that is the case, the government should make adequate budgetary allocation for the training of teachers for technology integration, as well as employ technicians to assist the teachers in the use of modern

technologies. Then that will enhance the effective utilisation of technologies in the teaching and learning of Business Education.

Therefore, making provisions for the maintenance of technology facilities, and employing more technicians to the schools could be considered as facilitating conditions. In most secondary schools, it seems all aspects that could be considered as facilitating conditions as defined by Venkatesh et al. (2003), were not met and there one can conclude that there was definitely a lack of facilitation conditions to ensure ICT integration does take place.

Therefore, it is important that the government and school managers ensure that technicians are employed in the schools to help create an enabling environment that will enhance maintenance of technological equipment and resources.

8.3.5 Poor Technology Policy Implementation

Poor technology policy implementation was identified as a barrier to technology integration (Schoepp, 2005; and Goktas et al., 2009). Goktas et al. (2009) assert that teachers end up lacking computers as a consequence of the lack of technical support. When the computers break down and no one is available to offer technical assistance, the number of computers would be reduced and eventually, the number of computers that the school has would be minimal. Limited computers increase chances of limited access to computers. The face-to-face interview revealed that the school managers and the government are not concerned about the implementation of the content in the technology policy document which detailed how the teachers and the learners were expected to use the technologies in their teaching and learning activities. During the face-to-face interviews, the teachers stated that poor policy implementation is the major challenge in the issue of technology use in teaching. The teachers further added that many things that are stated in the policy document have not been implemented, including the provision of technology facilities and resources in schools.

The teachers identified poor policy implementation as a major challenge facing the integration of technology into teaching and learning. Unfortunately, there are policies and documents stating what is to be done in terms of technology integration in secondary schools, but the implementation is not forthcoming. Teachers could not do much rather than to complain to the school managers about the need to introduce technology to improve the quality of teaching and instruction in schools. If the teachers and the students are not guided as to what they have to do with the available technologies at their disposal it could be very difficult to see the

technologies fully integrated into to the teaching and learning activities. The teachers and learners may be using the technologies but might be for educational purposes. Therefore, it is highly important that teachers are made aware of what is expected of them and their students about technology integration.

Ertmer et al. (2013) stated that school administrators should be responsible for making the policy known to the teachers and students. Also, the administrators are regarded as key enabling factors in the integration of technology, they are capable of positively influencing teachers to use technology in their teaching of Business Education. The implementation of the policy is as important as the policy itself. So, it is important that the policy and its content should be made known to the teachers and as well as to the students.

The policy would address and readdress issues of professional development in the teaching of Business Education in the secondary school. The policy would advise as to what should be done and should be expected of teachers who are not technology competent. Maybe the policy would specify how many weeks or months should be given to them to acquire the necessary technology skills. On the other hand, if the policy is not implemented and put to work some teachers would be left to continue their teaching without the integration of technology in their classrooms and in their teaching. If that should be the case, it would be to the detriment of the students. Sang, Valcke, van Braak, Tondeur, and Zhu (2010) asserted that policies relating to technologies usually contribute immensely in directing the teachers as to what is expected of them in technology integration. Poor technological policy implementation in secondary schools is a challenge in the process of technology integration in the teaching and learning of Business Education.

It is essential to provide all necessary support to encourage the teachers to effectively integrate technology in their teaching. Tondeur, Van Keer, van Braak, and Valcke, (2008), in Belgium, found that school-related policies, such as an ICT plan, ICT support and ICT training have a significant effect on the class use of ICT. The authors further assert that school policies on ICT are often underdeveloped and underutilised. This could be possible in the case of Nigerian secondary schools technology policy implementation and use of technology in the teaching of Business Education. The low level of integration of technology could be due to the lack of policy implementation which could have led to lack of guidance regarding what the teachers and the students should be done with the available technologies in the schools. Also, it is obvious that some teachers may not find it necessary to use the technology if there is no policy

guiding and directing them on what to do, based on that the teachers may turn to the traditional teaching methods. Therefore, it is important to note that the Nigerian national policy on technology was designed to ensure that Nigeria as a nation recognises the strategic importance of technology for national development (Kwache, 2007). Based on the above, the government and its agencies should take concrete steps to ensure that the content of the policy is translated into reality.

8.3.6   Teachers' beliefs/Reservations

The analysis of the two qualitative chapters, Chapters Five and Six reveals that some teachers' personal factors affect technology integration in the teaching of Business Education in Nigerian secondary schools. The results of the analysis show that low levels of technology use in Business Education classrooms are due to the teacher's lack of technological skills, and teachers' beliefs about technology integration. According to Ertmer (1999) second-order barriers to comprise those that were internal to the teacher and included teachers' confidence, beliefs about how students learned, as well as the perceived value of technology to the teaching/learning process. Second-order barriers were considered to pose a greater challenge to technology integration in the classrooms (Dexter & Anderson, 2002). Anderson and Maninger (2007) believe that barriers in the form of lack of resources (knowledge and skills, available technology, time, technical and administrative support) and lack of will due to incompatible beliefs about technology and teaching prevent the integration of technology by in-service teachers. The main purpose of this section was to find out about teacher personal factors and their influence regarding the integration of technology in the teaching of Business Education.

Studies have revealed that teacher beliefs could affect technology use in teaching and learning. Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, and Sendurur (2012) assert that teachers' own beliefs and attitudes about the relevance of technology to students' learning have the biggest impact on their success. Ertmer et al. (2012) also stated that the strongest barriers preventing other teachers from using technology were their existing attitudes and beliefs towards technology, as well as their current levels of knowledge and skills. During the qualitative data analysis, the results from the participants' responses indicated that using technology integration could disrupt teaching and learning activities. The results show that many of the participants have the belief that it will be very difficult to teach with computers in their schools due to large classrooms, and lack necessary infrastructure and the fear that technology will bring

distractions in the classrooms. Also, the results indicate that some of the teachers are afraid and believe that the idea of technology in the classrooms will require them to change their teaching philosophies to accept a new idea of teaching with which the considered very difficult.

The implications of the above discussions are that the use of technology in the teaching and learning classrooms will always be affected by teacher's beliefs about technology use in teaching. The use of technology teaching and not all about using technology to present material to students to make the lesson (Goktas, 2013). The results indicate that the teachers do not know much about the benefits technology integration is capable of offering to teaching and learning. According to the participant's statement "I think this is not something we teachers should rush into or embraces wholeheartedly immediately, we need to ask questions about the need for this integration of technology" could be revealing that the teacher requires training or a workshop to educate the teachers properly on technology integration. The result shows that the teachers have not realised the advantages of using technology in the teaching and learning process. It could be concluded that Business Education teachers lack proper encouragement to integrate technology into the teaching and learning Business Education subject. Therefore, the teachers need to train on how to use technology in their teaching to achieve the teaching and learning objectives anytime, and any day and anywhere.

Regarding the teachers' beliefs, it seems the teachers have not yet received proper education on technology integration. The result of the analysis shows that the teachers' beliefs about technology integration did not come from experience, but was based on rumors. Also, participants stated that their opposition to technology integration is in relation to electricity interruptions, and break-down of technological facilities while in use in the classrooms. Ertmer (1999), suggested two broad types of barriers that impacted teachers' uses of technology in the classroom, categorised as first-order and second-order barriers. The first-order barriers were defined as those that are external to the teacher and included resources (both hardware and software), training and support. Second-order barriers comprised those that are internal to the teacher and included teachers' confidence, beliefs about how students learned, as well as the perceived value of technology to the teaching/learning process. Therefore, it could be concluded that the teacher's negative attitude and reservations about technology integration emanate from both external and internal factors.

8.4 CONCLUDING REMARKS

It is evident that much can be achieved in teaching and learning of Business Education with the use of technologies in the classroom. With technology in the classrooms, the quality of teaching could be enhanced considerably. This study found that, currently, there are very many contextual factors ranging from non-availability of modern technologies, poor electricity supply, poor maintenance culture and underutilisation of technology resources in the schools; poor technology policy implementation; and lack of training support and staff development programs, prohibiting integration of technology in the teaching of Business Education in the Nigerian secondary schools. The results indicate that none-availability of modern technologies are the major challenge to the integration of technology in the teaching of Business Education in Nigerian secondary schools. Because of the none-availability of technologies in secondary schools, many Business Education students graduated without acquiring any technology knowledge throughout their secondary schools years. This could be the case, as Business Education teachers do not have access to technology training and development program, therefore, they lack technology skills and knowledge. The teachers also do not have access to the necessary technologies. However, even if other factors are been taking care of, there is still poor electric power supply to the schools. The implication of the results is that there is lack of facilitating conditions in the schools investigated to enable technology integration.

8.5 RESEARCH QUESTION 3

What factors motivate teachers in the use of technology in the teaching and learning of Business Education in secondary schools in Nigeria?

Authors Meyer and Alexandra (2011); Iron (2008); Wang and Hartley (2003); Hennessy, Ruthven and Brindley (2005), Dockstader (1999), are of the opinion that factors motivating teachers to use technology in teaching and learning are influenced by several factors that include that technology encourages participation, extended learning time; technology integration enhances communication; minimises cost of running school activities; support for differentiation and close learner attainment gaps. Although, the results of the data analysed in the previous three chapters (Five, Six and Seven) revealed that the teachers did not use any technology or at least the majority did not integrate any technology in their teachings. Hence, in the sections to follow, the teacher's perceptions as well as the input from teachers who did use technology, although few, will be analysed.

8.5.1   Technology Encourages Participation

The teachers stated that technology integration encourages learner's participation in the classroom. They made this statement during the focus group discussions when answering the question: what motivates you to use technology in your teaching of Business Education? Their responses that technology integration encourages participation suggested that some of the teachers are either integrating technology or have heard from others that students actively engaged in class discussions and activities when technologies are being used in teaching.

Teachers even mention that learners pay more attention as well as make contributions in a technology integrated classroom teaching and learning. Also, the teachers reported that as a result of integrating technology in teaching and learning learners are encouraged to complete their assignments, and contribute in class discussions. The quantitative data results on PE show the majority of the respondents indicated that using technology helps them attain gains in job performance.

Table 8.2:   **Distribution of performance expectancy statistical results**

Mean	Median	Mode	Std. Deviation
4.79	5.00	5	.676

Strongly disagree, Disagree, Neutral, Agree, Strongly agree

The table above shows the teacher's degree of agreement that using technology will enhance teachers teaching. The teachers agreed that integrating technology in the classroom will enhance their teaching and also enhance their learners learning of the content. In Chapter Five, Table 5.7 indicates an interesting result, with more than 75% of the respondents strongly agreeing that using technology in the classroom will enhance the learners learning. Among the four constructs investigated, PE 4, in particular, has the highest percentage of strongly agreed with (81.5 %) of the respondents indicating that technology use fits well into their curriculum goals. The result also indicates that 79.8% of the respondents indicated strongly agreed for PE 1, the PE 2 with (78.1), and PE 3 with (76.4%). The PE results mean that the teachers strongly agreed that using technology in the teaching of Business Education will be an added advantage to effective curriculum delivery. Therefore, PE, which means the expected benefits gained by using technology (Venkatesh et al., 2003), had a significant positive effect on the intention to use technology in the teaching and learning of Business Education. The results of the

qualitative analysis show that teachers and their learners perform very well in the classroom as a result of technology integration. During the qualitative face-to-face interviews, the teachers stated that they believe using technology to teach, my learners may pay much attention and motivated. Technology integration could encourage participation in class as the learners see pictures or graphs. They may get inspired to learn with technology than traditional method of teaching

The teachers of Business Education perceive that access to technology in teaching and learning of Business Education enables teachers to teach effectively and enable the learners' access to the internet resource material provided the schools are connected to the internet. The results mean the participants believe that integration of technology in the teaching and learning activities offers a good opportunity in getting the job done faster and more effectively than the traditional methods of instruction. The result could also be an indication that the teachers are willing to integrate technologies in their classrooms if they are made available and accessible to them. The results could well mean that the teachers aware of numerous things that computers can help them to achieve, for instance, using computers to keep track of learners' attendance, assessment scores, creating schemes of work and syllabus and as well as for creating websites. But because they do not have access to the relevant technologies that is the reason they are not integrating technologies in their classrooms.

Perhaps some of the teachers may have engaged in discussions about the use of technology, or may have heard from the news about using technology to teach, weighed their teaching performance presently and imagined using technology in their teaching; perhaps they could see what the difference would like and perceive that technology could provide more information that will help them to be more creative and effective, and achieve their teaching objectives in a way that interested them. The participants acknowledged that integrating technology in the classroom enables teachers and students to engage more critically and creatively in the classroom discussion. The results indicate that the teachers believe that using technology will be much easier for them and their learners to do their work and save a lot of time than the traditional mode of delivering Business Education. Also, as indicated in Chapter Five, that teachers have strong belief that if technologies are been made available in their classrooms, it would make lessons presented more interesting and teaching easier as technologies like emailing, projectors, internet search, enable the teachers to source materials to enhance teachers' teaching strategies and learners' learning strategies.

The literature revealed that technologies like email, projectors, computers and the internet aid teachers to teach effectively and supports their learners, and develop their knowledge, understanding and skills (Kosoko-Oyedeko & Tella, 2010). In other words, technology integration in the classroom gives more power to the teachers in school, giving them more prestige, making the teachers' administration more efficient and providing professional support through the use of technology in the teaching and learning. The results of the data analysis for both quantitative and qualitative data indicated a very high percentage of participants who strongly agree that technology integration in the classroom will improve their teaching and make teaching and learning more effective and interesting. Apparently, secondary schools in Nigeria are willing to integrate technology into their teaching if the technology is made available to them. Furthermore, regarding teachers motivating factors to use technology into teaching, it can be concluded from Chapter Five (Table 5.7), and Chapter Six (section 6.3.1) that most teachers appreciate and desire to integrate technology into their teaching of Business Education subjects. Thus, if a teacher has a positive feeling about technology integration, and if resources were made available and training provided, he or she would be keen to use technology to teach (Anyanwu, 2014; Curtis & Lawson, 2001; Cox et al. 2000).

8.5.2   Extended Learning Time

From the qualitative data analysis in Chapter Six of this study, the teachers acknowledged that technology integration extends learners' learning time. They stated that in various ways using technology assists both teachers and learners in the study of Business Education in secondary school. The teachers could be indicating that students' learning opportunities are continuous with the technology available to them, as they have access to their teachers constantly even after school hours. This means that technology is capable of extending learning time for the learners in a way that the learners to do not experience a lack of learning resources or materials because they are away from schools. It means that wherever the learners are, no matter the time, the can log into their school website and download materials and resources that are relevant to what they are studying. Teachers' statements reveal that with technology at the disposal of the learners they have unlimited access to study resources and materials that are relevant via their school websites.

Dockstader (1999) asserted that students are motivated by technology, thus increasing academic engagement time. Teacher's statements indicated that with technology the learners can access these study materials from anywhere and at any time as far as they have an internet

connection. The participants during focus group discussions were asked "what motivates them to use technology in their teaching of Business Education?" Their response that integrating technology into teaching and learning of Business Education offers Business Education learners extended learning time. This shows that indeed technology integration in the teaching and learning enables the teachers to offer more learning support to the learners even after school hours, and also it enables the students as they receive learning support from their teachers and have unrestricted access to learning material online. Additionally, the participant' perceptions of technology integration shows that with technology at the reach of Business Education learners, they can continue their study from where they stopped at school irrespective of time and place as far as the learner is connected to the internet. This means that students are able to search for additional learning resources online on their own.

Teachers' statements indicated that learners receive a different kind of assistance after school hours; the receive teacher's help via electronic email or through online collaboration, as well as tutorials to assist them to continue their learning. This means that technology integration in Business Education inspires new ways of teaching and learning (Cemalettin, 2006). Dockstader (1999) asserted that with the use of technology in teaching students are able to move beyond knowledge and comprehension to application and analysis of information, students learn where to find information in an information-rich world. Also, the quantitative analysis on effort expectancy in Chapter 5 reveal that the teacher's responses indicate that the use of technology in teaching will be effortlessness.

Table 8.3:   **Distribution of effort expectancy statistical results**

Mean	Median	Mode	Std. Deviation
4.87	5.00	5	.422

Strongly disagree, Disagree, Neutral, Agree, Strongly agree

The above table indicates that the Business Education teachers believe that integrating technology in their teaching will assist Business Education learners in their study as the learners will not struggle in accessing learning materials, as well as receiving needed assistance from their teachers as indicate by the mean. In Chapter Five, Table 5.8, the quantitative results suggested that in all the four statements of effort expectancy the teachers are of the opinion that integrating technology in Business Education classrooms will make teaching and learning

easier and more flexible. Chapter Five, Table 5.8, shows that Business Education teachers perceive that using technology in teaching Business Education is enjoyable. Integrating technology in the teaching and learning of Business Education enables teachers to access the internet resource material provided the schools are connected to the internet. Therefore, facilitating as one of the constructs of technology adoption in the UTAUT include "ease associated with the use of the system" (Venkatesh et al., 2003). Fortunately, in most of the secondary schools, the teachers perceive the use of technology in teaching Business Education to be helpful, easy and enjoyable.

8.5.3 Technology Integration Enhances Communication

The participants' responses indicate that technology improves communication both in the classroom and entire school community. The result shows that technology integration improves how the members of the school community communicate with each other. Improved communication was identified as one of the powerful benefits of technology integration in the teaching and learning activity. The teachers perceived that as a result of technology use in teaching and learning teachers are encouraged to share their ideas and talk about the things that relate to teaching and learning. The teachers acknowledged and embraced numerous channels that enabled communication in which they communicate with learners about their subjects and everything that concerns teaching and learning. The face-to-face interviews revealed that integration of technology in teaching and learning enhances communication even with people outside the school environment. Even during the face-to-face interviews, the participants commented that technology enhances communication with those parents who are exceptionally busy with different schedules, who work different hours and cannot constantly assist their children with homework or attend PTA meetings. With the availability of technology in schools, such parents can communicate with the schools, go to the school website and see what their children are working on, they can as well contact and communicate with their children's' teachers through email and the school web sites, more especially follow-up on their children's attendance.

The teachers perceived improved communication between students and teachers and school management as among the contributions/benefits of technology integration in the school. The idea of communication in the classroom offers a wide range of opportunities to users (teachers, learners, and school management) through improving communication channels, teachers could share the record of learner's performance with the parents. It is also possible that through the

improved channels of communication teachers can help absent students to follow the progress of the course. The result indicates that the use of proper communication could provide the students' access to interact, communicate and to share ideas and their concerns with members of the community.

Importantly, the results effectively mean that with the assistance of technology in teaching and learning, teachers now communicate faster to the students than when there was no technology in the schools. Also, the statements mean that communication between parents and the school management has to take a new shape because of the integration of technology in some of the schools. Therefore, with technology readily available in schools there is no restriction to communication, member of the school community can communicate with each other or as a group through various channels. This is to say that ICT has become more powerful, more accessible and more widespread. Its role in enhancing competitiveness, enabling development, and bringing progress to all levels of education is beyond question (Cemalettin, 2006). Teachers would not struggle to communicate feedback to their learners because of the availability of electronic feedback method. The school management can easily communicate with the parents and the parents can conveniently communicate with the schools to follow their children's academic progress. Furthermore, Meyer and Alexandra (2011) assert that integrating ICT in teaching and learning makes teaching fast, easy and flexible. Thus, the teachers appreciate the power of technology to enable bulk delivery of messages. Also, technology has improved the manner in which school communities communicate to both their staff and their students, by offering a variety of communication channels, hence presenting several choices on how to communicate with people. According to White and Baker, (2000); Mark (2000), in addition, by connecting teacher and students; technology is capable of providing a genuine and conducive learning environment for the students to study from anywhere they might be and at any time.

Also, the quantitative data analysis results presented in Chapter Five, Table 5.9, indicated that using technology in teaching has a real advantage over other methods of teaching. This shows that majority of the teachers believe in the integration of technology in education as a way to ease and improve teaching and learning. The results of the analysis on effort expectancy appear to mean that the teachers agree that the integration of technology in the teaching of Business Education subjects will enhance teaching and activities including communication with their learners, school management and even the neighbouring schools. Since the majority of the

teachers considered technology integration as what is needed in secondary schools teaching and learning, perhaps, schools need to consider teachers' effort and assist the practising teachers to ensure full integration of technology in the teaching and learning classrooms of Business Education.

According to the Council on Higher Education (CHE, 2003) and the Department of Education (DoE, 2004) in South Africa, the need for integration of technology in schools is to speed up the way communication and how teaching and learning are being done. Maintenance of communication between teachers, the school community and students are crucial and indispensable in teaching and learning. In the same way, the results of this study also concur with Rahman (2008) as well as Warschauer (2010) who describe technology integration in the teaching and as an important for communication in sending, sharing and receiving of feedback. Moreover, Rahman (2008) argued on the importance of communication in teaching and learning classrooms. The study stated that technology integration in teaching and learning opens up a way where contributors, participants or users post and/or read messages presented under different subject headers or threads. The participants indicated that they usually communicate through Facebook, Twitter, Gmail, WhatsApp, video calls and that the communication channels enhance communication between teachers and learners.

The results show that through technology integration in the classrooms, teachers communicating with learners is never a challenge as far as the learners or their parents/care-givers are connected to the internet. This implies that both the teacher and the learner can send messages relating to subject natter to one another, and also the teacher can send as many messages as possible at one time to many learners. The results also indicate that the participants were exposed to the skills of typing messages, sending and receiving messages either using their cell phone or desktop computers which are necessary skills for today's world of work environment. The results reveal that technology integration permits communication with ease, learners may seek clarification on assessment tasks from their teachers and receive clarification from their teacher immediately even when they are not in school.

8.5.4   Minimise Cost of Running School Activities

"Minimise the cost of running school activities" was identified as a factor that encourages the teacher to use technology in teaching and learning. Technology as a way of enabling schools to minimise cost was made clear by participants expressing their thoughts about technology integration and the support they believe technology integration created in teaching and learning

(Madu, Obidi & Odimmege, 2015). The teachers' perception is that technology integration helps in bridging the inequality gap that exist in education and in teaching and learning. There are variations in the way things happened in schools. The teachers' views capture the gap in support and funds that are available to different schools and learners. According to the teachers' statements, some schools are marginalised as they do not receive support from the government, NGOs and even from the community like other schools do. The statement reveals the teachers' experiences of schools struggling to keep up with different resource shortages and lack of support. According to the participants, some technology resources exist that the school can use to reduce the cost of running the day-to-day school activities. Participants in the study acknowledged the value and support of technology integration in general management of the school. This indicates that the importance of integrating technology in schools is not only felt in the classroom but in other departments of schools.

Studies indicate that technology integration could help schools in the way of using electronic forms instead of printing hard copies (Belland, 2009; Newby et al. 2006). The schools could as well use virtual laboratories to teach students (Ertmer, 2005). This suggests that technology integration offers great support to schools to avoid waste of resources and minimise cost. This implies that technology integration means using technology to make learning more efficient or effective as well as the use of technology to help students solve problems. Most of the teachers' perceptions of technology integration are influenced by the support technology integration offered in assisting schools to reduce excess spending in managing schools.

According to the qualitative analysis results in Chapter Six, if technology is fully integrated into the schools, electronic textbooks could be utilised instead of buying hard copies. Only one download needs to be done and shared among learners and teachers to read on their computers. As noted in Chapter Two, Redmann and Kotrlik (2008, p. 3) see technology integration as "making, modification, usage and knowledge of tools, machines, techniques, crafts, systems and methods of organisation to solve a problem, improve a pre-existing solution to a problem, achieve a goal, handle an applied input or output relation or perform a specific function".

Technology integration can offer schools a great opportunity to maximise their resources effectively and efficiently in terms of communication, downloading learning materials and video conferencing.

Also, in Chapter Five, (Table 5.8), the results of the analysis reveal that teachers responded positively to effort expectancy. The results of the analysis show that more than 75% of the teachers indicated that using technology is innovative and effortless in teaching and learning. Therefore, as one of the constructs of technology adoption in the UTAUT is effort expectancy which includes "ease associated with the use of the system" (Venkatesh et al., 2003). Fortunately, most Business Education teachers consider the use of new technologies in teaching Business Education as helpful, effortless and innovative.

8.5.5 Support For Differentiation and Closing Learner Attainment Gaps

From the results of the quantitative data analysis, Chapter Five (Table 5.7), more than 60% of the respondents indicated they believe that using technology would help them to attain improvements in job performance which includes supporting their learners' learning differentiation and close learner attainment gaps. The teachers' conceptions of technology integration in teaching and learning consider technology to be able to offer support to teachers to cater for learner's differentiation in learning and as well close learner attainment gaps in education. This means that technology integration in teaching and learning encouraged students' individual capacities to study and think as they have access to support at all times.

Furthermore, integrating technology in the classroom offers individual learners the opportunity to create their own learning network. Therefore, every learner learning in a technologically enriched classroom is opportune to create their personal learning style and maintain it because of the availability of different technologies at their reach. At the same time, teachers have an enormous opportunity to provide necessary and needed support to every individual as a result of the availability of different technology. Undoubtedly, the presence of needed technology in the classroom and teachers and learners knowing how to manipulate the technologies would lead to an increase in support of learner differentiation in the classroom. It would be highly likely that teachers would be able to close learner attainment gaps in their various classrooms. Most of the teachers in data analysed in Chapter Five, (Table 5.8) indicated that using technology is innovation and effortless in teaching and learning. Table 5.8 shows that the overall effort expectancy to technology use in the classroom is positive. The results from Table 5.8 indicate that the teachers strongly agreed that the integration of technology in the teaching of Business Education subjects will make teachers' teaching of Business Education subjects easier and make learning more flexible for the learners to learn Business Education.

Technology integration was identified as a support tool in the teaching and learning in secondary schools Becker (2000). Becker (2000) indicated that technology serves as a valuable and well-functioning instructional tool. If the technologies are made available and the teachers utilised the technologies maximally it would be beneficial both to the students and the teachers as well. If the technologies are available and the teachers are not incorporating it maximally into their teaching activities the technologies will not serve the purpose, and whatever purpose for installing the technologies are being defeated. Despite the fact that the respondents, as noted in the data analysed in Table 5.8, indicated positive perception regarding the perceived ease of use.

Technology serves as a tool linking teaching and learning; therefore, with the support of technology in the classroom teachers could access different teaching materials and even different teaching strategies to support their learners' learning differentiation. In Chapter Five (Table 5.8), more than 75% of teachers indicated that technology integration could ease their teaching. Therefore, there is no doubt that the teachers would willingly and eagerly integrate technology in their teaching of Business Education subjects if they had access to the technologies in their schools, and if they receive proper training on the use of technology to teach. Studies indicate that instructional technology use appears to be increasing. The most common and frequent uses have resulted in changes in teaching style (Ertmer, 2005). On the other hand, Goktas et al. (2009) noted that lack of technologies in the schools as a major barrier to the adoption of technology in the teaching activities. Lack of access to technology could. however, prevent integrating technology into the classroom. Albirin (2006) indicated that there is a close relationship between technology availability and the attitude of teachers towards technology use in teaching. The responses by the respondents revealed that Business Education teachers in the Nigerian secondary schools are more likely to integrate technology into their teaching of Business Education subjects if the technologies are made available and necessary training is being provided to them.

Two of the constructs of technology adoption in the UTAUT are PE and effort expectancy (Venkatesh et al., 2003), means that Business Education teachers believe that using technology will help provide support for the learners learning differentiation. While teachers believe in the PE and effort expectancy of technology use, there is a need to supply the schools with technology, and to provide them with a policy to guide and encourage both teachers and learners on how to use the technology for their maximum benefits. This is important for the

teaching and learning of Business Education in the Nigerian secondary schools. The analysis of the five UTAUT constructs suggested that there is a massive lack of facilitating conditions to enable technology use in teaching and learning of Business Education in secondary schools in Nigeria.

Table 8.4:   Distribution of overall UTAUT constructs statistical results

	Performance Expectancy	**Effort Expectancy**	**Social Influence**	**Facilitating Condition**
Mean	4.79	4.87	4.49	1.60
Median	5.00	5.00	5.00	1.50
Mode	5	5	5	1
Std.Deviation	.676	.422	.750	.741

Strongly disagree, Disagree, Neutral, Agree, Strongly agree

The table above reveals that teachers perceived that technology integration in the teaching of Business Education will enhance provision of effective and quality teaching of Business Education in Nigerian secondary schools. Also, the table shows that there is lack of facilitating conditions to encourage use of technology in teaching in secondary schools.

8.6   DISCUSSION

The discussions above are clear indications of perceived importance teachers attached to technology integration in the teaching and learning of Business Education in secondary schools. Literature has indicated that integrating technology in teaching and learning benefits both the teacher and the learner and their school community. The results indicate that technology integration breaks the traditional teaching model and empowers teachers to be creative; technology integration enhances teacher's pedagogical competency; technology integration is a support tool in teaching and learning, and technology improves communication patterns in teaching and learning, motivating teachers towards integrating technology into their teaching. These factors also can play a decisive role in the manner teachers integrate technology in education (Sulungai et al., 2012). Thus, they are factors that need to be considered in any

secondary school in Nigeria if the integration of technology in secondary schools is to be successfully achieved.

In addition, literature has also revealed that technology integration is essential in teaching and learning (Wang, Chung, and Yang, 2014; Gibson, 2001). Technology integration inspires new ways of teaching and learning and helps a teacher to develop the required pedagogical skills for integrating technology into their classrooms (Cemalettin, 2006). Additionally, technology integration in the classroom has become more powerful, more accessible and more widespread. Its role in enhancing competitiveness, enabling development, and bringing progress to all levels of education is without a doubt (Cemalettin, 2006). From the results, the teachers have the understanding that technologies offer unique opportunities for learning through exploration, creative problem solving and self-guided instruction and skill improvement.

Therefore, it is highly likely that teachers may be keen to integrate technology into their classrooms because they already understand and have expected benefits from using technology to teach. Furthermore, from the results, the respondents were willing to use technology even though the resources and equipment were not accessible to them and they were not highly competent in using technology to teach. According to Iron (2008), technology in teaching and learning has the capacity to change the nature of instructional delivery. Integration of technology has become an integral part of the instructional process, resulting in the development of new concepts in the logistics of instruction. Studies indicate that technology should be made part of the educational delivery of learning. This is because the use of technological devices and machines has made teaching and learning a little easier, concrete, and real and more result-oriented (Madu, Obidi, Odimmege, 2015).

Additionally, integration of technology into teaching and learning of Business Education has the potentials to accelerate, enrich and deepen communication skills; motivate and engage students in learning (Nigerian Federal Ministry of Education, 2014; Yusuf, 2005). Technology integration has the potential to help relate school experiences to work practices. Technology has the potential to help create economic viability for tomorrow's workers; it contributes to radical changes in school, and provide opportunities for connection between the school and the world (Nigerian federal ministry of education, 2014; Yusuf, 2005). Since the majority of the participants indicated that technology integration will assist them to provide effective teaching to their learners, schools and the government will need to devise a concrete plan to integrate technology in all the secondary schools.

8.7   CONCLUDING REMARKS

The purpose of this section was to present and discuss the results of the key research question: "What factors motivate teachers in the use of technology in the teaching and learning of Business Education in secondary schools in Nigeria?" From the responses tabulated it can be concluded that teachers in Nigerian secondary schools have perceptions of numerous factors that could motivate them to integrate technology in their teaching of Business Education subjects. However, they have numerous challenges regarding the integration of technology in secondary schools. The majority of the teachers do not have access to technology resources and equipment. This is common with the teachers in almost all the schools. As well, a majority of the teachers, despite showing positive interest to integrate technology into their teaching do not have necessary technological skill and knowledge needed to fully integrate technology owing to the lack of training opportunity and teacher development program. This indicates that majority of the teachers are not adequately prepared to teach in technology-rich classrooms. The results reveal that majority of the teachers understand the needed for integrating technology in the classrooms and the potentials for using technology to teach. Generally, the results indicate that, based on theoretical knowledge, teachers have clear perceptions of what technology in the classroom is capable of bringing to both the teachers and the learners, but the challenges are that the existing conditions in the schools are not conducive to effectively integrate the technology into their teaching and learning activities. According to UTAUT theory, if facilitating conditions are not met then technology integration becomes a challenge. All of the above-listed factors will influence teachers negatively towards integrating technology in their various classroom. The results indicate that the teachers perceived the integration of technology in teaching and learning of Business Education will assist them to provide effective teaching to their learners, and also will help learners source learning materials online. The implication of the above discussion is the need for the integration of relevant technologies in Business Education classrooms in Nigerian secondary schools.

8.8   RESEARCH QUESTION 4

What knowledge do teachers of Business Education have in terms of TPACK in teaching and learning of Business Education?

The purpose of the above research question was to understand different kinds of knowledge teachers of Business Education possess in terms of TPACK in teaching Business Education subjects.

The International Society for Technology in Education (ISTE, 2000) stated that teachers teaching in the 21st century are faced with a high demand of preparing learners adequately to live, learn and work successfully in an increasingly complex and information-rich environment in which we live. Mishra & Koehler (2009) described TPACK as a framework to understand and describe the kinds of knowledge needed by a teacher for effective pedagogical practice in a technology-enhanced learning environment. At the heart of the TPACK framework is the complex interplay of three primary forms of knowledge: CK, Pedagogy knowledge (PK), and Technology knowledge (TK) (Mishra & Koehler, 2009). The TPACK model focuses on the challenges of integrating technology in the teaching and learning by the teacher. It also addresses teacher's knowledge of integrating technology in their teaching and learning environment (Mishra & Koehler, 2009).

8.8.1 Teacher's Technological Knowledge

In Chapter Five, (Table 5.11), the quantitative analysis on the TK of Business Education teachers shows that the majority of the teachers do not possess knowledge about most of the technology needed for technology integration in the classroom. Table 5.11 in Chapter Five shows that more than 55% of the teachers indicated that they lack technology skills and that they never used technology in their teaching, with 80.7% of the teachers indicating that they do not know about a lot of different technologies. Also, the table reveals that 80.4% of the respondents indicated strongly disagree on the statement "I know how to solve my own technical problems". Additionally, 77.6% of the respondents reveal that they do not have the technical skills needed to use technology. What the results reveal is that majority of the teachers teaching Business Education in Nigerian secondary schools lack the necessary technology knowledge needed to integrate technology in the classrooms.

8.8.2 Teacher's Content Knowledge

The quantitative data analysis in Chapter Five, Table 5.13 shows that the majority of teachers have CK of Business Education subjects. The results in Table 5.13 show that more than 50% of the respondents indicate that they possess CK. CK is a very important body of knowledge that is needed in the teaching and learning classroom. CK mainly is concerned about the subject area a teacher instructs (Koehler et al., 2007). Basically, it is an important body knowledge that answers the question of "what will be taught?" which includes terms, theories, ideas, constructs, and applications specific to a content area (Sahin, 2011; Margerum-Leys & Marx, 2002). Shulman (1986) noted that content includes knowledge of concepts, theories, ideas,

organisational frameworks, methods of evidence and proof, as well as established practices and approaches towards developing such knowledge in a particular discipline. The quantitative analysis result is an indication of a Business Education teacher's sound knowledge of their subject areas.

8.8.3   Teacher's Pedagogical Knowledge

The analysed quantitative data Business Education teachers in Nigerian secondary schools possess PK for teaching Business Education subjects. The results in Table 5.12, reveal that more than 50% of the teachers possess sufficient PK to teach Business Education subjects in secondary schools. Table 5.12 shows that more than 50% of the respondents indicated strong PK in all the constructs investigated. From the analysed data results, it is clear that statements "I can adapt my teaching based-upon what students currently understand or do not understand" and "I know how to organise and maintain classroom management" have the highest percentage of strongly agree with 64.5 % each. Pedagogical knowledge is knowledge about how learners learn, teaching approaches, methods of assessment and knowledge of different theories about learning (Harris, Mishra & Koehler, 2009; Shulman, 1986). Additionally, this body of knowledge is regarded as deep knowledge about the processes and practices of teaching and learning, encompassing educational purposes, goals, values, strategies, and more (Koehler et al., 2007; Shulman, 1986). Therefore, the quantitative data analysis results above are evidence that the majority of the Business Education teachers possess PK to teach Business Education subjects.

8.8.4   Teachers' Pedagogical Content Knowledge

Koehler et al. (2007) asserts that pedagogical content knowledge deals with the awareness of students' prior knowledge, alternative teaching strategies in a discipline, common content-related misconceptions. This means that PCK is important for teachers to have as it is concerned with how to forge links and connections among different content-based ideas, and the flexibility that comes from exploring alternative ways of looking at the same idea or problem, and more. The results of the quantitative analysis in Chapter 5, Table 5.14 indicates that the majority of Business Education teachers possess PCK. Table 5.14 indicates that more than 50% of the teachers have PCK required in the teaching and learning of Business Education. Importantly, the results reveal that more than 60% of the teachers who responded indicated that they can make a difficult lesson easier for students to understand. Therefore, the results mean

that Business Education teachers possess enough PCK required to teach Business Education subjects in secondary schools in Nigeria.

8.8.5   Teacher's Technological Pedagogical Knowledge

TPK as a body of knowledge includes an understanding that a range of tools exists for a particular task (e.g., fostering collaboration) as well as knowing what pedagogical strategies to employ to get the most out of a piece of technology (Koehler et al., 2007). TPK highlights the existence, components and capabilities of various technologies as they are integrated into teaching and learning activities or environments. TPK is an important body of knowledge Business Education teachers should possess. On the other hand, the outcomes of the analysed quantitative data of teachers' TPK below indicate that Business Education teachers have a low-level TPK.

The teachers indicated that they do not possess PCK which is a combination of pedagogy and technology. From the table, more than 65% of the respondent indicated a low level of skills to combine pedagogy with technology to teach Business Education subjects. Especially, in the three of the nine constructs investigated, 70.2% of the respondents indicated strongly disagree with the statement which says: "I can select technologies to use in my classroom that enhance what I teach, how I teach and what students learn". Also, in another statements, "I can use strategies that combine content, technologies and teaching approaches that I learn about in my coursework in my classroom" 68% of the participants responded strongly disagree with the statements, while 6.3% of the participants indicated strongly agreed. The evidence from the results is that the majority of the teachers teaching Business Education lack TPK.

8.8.6   Teachers' Technological Content Knowledge

This body of knowledge is considered an understanding of the manner in which technology and content influence and constrain one another in the teaching and learning environment. As a body of knowledge TCK involves understanding the manner in which technology and content are reciprocally related to each other (Koehler et al., 2007). It is regarded as a very important body of knowledge in the field of teaching and learning because it helps teachers visualise instances where technology can be effectively integrated into their teaching (Margerum-Leys & Marx, 2002). The quantitative data analysis in Table 5.16 reveals that Business Education teachers do not possess adequate TCK. The result shows that a majority of the respondents do not possess the required knowledge to combine technology with content. As Table 5.16 in

indicated, more than 50% of Business Education teacher do not possess TCK. In particular, 63.6% of the respondent indicated strongly disagree to the statement which says, "I use the technologies to develop learning activity and students' tasks". The reason for the teacher's responses could be that the teachers do not understand the right technology to use to deliver the content of their subjects. Also, the results could be that the teachers lack access to relevant technologies and lack of required skills, training to integrate technology into their teaching, as it is clearly revealed in Table 5.11 with the percentages 62.2%, 63.6% and 47.2% that the teachers do not have sufficient TCK.

8.8.7   Teachers' Technological Pedagogical Content Knowledge

This body of knowledge encompasses understanding and communicating representations of concepts using technologies; pedagogical techniques that apply technologies appropriately to teach content in differentiated ways according to students' learning needs; knowledge of what makes concepts difficult or easy to learn and how technology can help redress conceptual challenges; knowledge of students' prior content-related (Koehler et al., 2007). TPACK is different from knowledge of its individual component concepts and their intersections. It arises instead of multiple interactions among content, pedagogical, technological, and contextual knowledge (Koehler et al., 2007). This body of knowledge is very important in teaching and learning activities, because of the belief that technology determines the use of content and pedagogical knowledge based on the issues that teachers encounter in education (Harris et al., 2009). The quantitative data analysis results in Table 5.28 reveals that Business Education teachers do not have TPACK.

The table clearly indicates that more than 65% of the respondents indicated that they strongly disagreed with the statements investigated. The responses on the three TPACK attributes shows higher percentages on strongly disagree (66.8%, 74.7%; 77.8%) respectively. The results imply that a large number of teachers teaching Business Education do not possess complete TPACK knowledge as expected that teachers should have to be able to teach effectively. Therefore, the results could be indicating a lack of technological skills or lack of access to educational technology. Additionally, the results could be showing the level of unpreparedness of both the teachers, government and the school management for technology integration. Correspondingly, the outcomes of the analysed TPACK data could be indicating a need for workshops and training on technology integration for teachers of Business Education.

Additionally, the results of the qualitative data analysis in Chapter Seven reveal that the teachers emphasised that they are not using technology in their teaching because they perceived themselves not competent in the use of technology. The teachers' declarations illustrate a lack of necessary technological skills to use technology in teaching Business Education subjects. The results are an indication that the teachers have attempted to use technology in teaching only to the limited extent of using their cell phones to access the internet because they do not possess supplementary technology knowledge. Teachers lack of technology skills could be a setback to the technology integration project in any school, and as well as to the provision of effective teaching and learning in the 21st-century education system. Obviously, the results of quantitative and qualitative analysis are evidence that Business Education teachers in Nigerian secondary schools do not have the necessary TK required from 21st-century teachers in other to provide effective teaching to the learners.

Literature shows that a lack of organisational commitment towards technology integration constitutes the highest barrier towards technology (Haliso, 2011). This could be the issues with Business Education teachers in Nigerian secondary schools not having technology skills. Lack of commitment and organisation could be a setback for them possessing necessary technology skills. A study conducted in Nigeria by Olutola and Olatoye (2015) found that the biggest challenge for technology use in Nigerian schools is the training of teachers to use technology in their teaching. Many secondary school teachers in Nigeria are not trained to make use of modern technologies in their teaching (Olutola and Olatoye, 2015). Teachers' lack of technology knowledge could affect teaching and learning activities massively in secondary schools. According to the National Research Council (NRC, 1999). The idea of technology knowledge or the fluency of information technology ("FITness") goes beyond traditional notions of computer literacy to require that people understand information technology broadly enough to apply it productively at work and in their everyday lives. The table below shows the bodies of knowledge in terms of TPACK that Business Education teachers do not possess.

Table 8.5:   Distribution of overall TPACK statistical results

	TK	PK	CK	TPK	TCK	PCK	TPACK
Mean	1.73	4.42	4.18	2.33	2.00	4.45	1.58
Median	1.68	4.79	5.00	2.56	1.75	4.75	1.00
Mode	2	5	5	1	1	5	1
Std. Deviation	.479	.743	1.016	1.247	1.024	.649	.830

This indicates that a majority of Business Education teachers do not have adequate knowledge in terms of TPACK. TK requires a deeper, more essential understanding and mastery of technology for information processing, communication and problem solving than does the traditional definition of computer literacy. TK implies that having knowledge of computer or technology applications are not enough, but having the knowledge and knowing how to apply the knowledge in using technologies in teaching and learning activities. That is exactly what matters most, and the reason it is essential for Business Education teachers to possess TK. Hence, from the results of analysed data, the results indicate that Business Education teachers do not possess TK, TCK, TPK and TPACK, as bodies of knowledge required for effective and efficient teaching and learning of Business Education classrooms in the 21st-century.

8.8.8   Concluding Remark

The discussions and presentation of results on teachers' knowledge in terms of TPACK reveal that Business Education teachers in Nigerian secondary schools have CK, PK, and PCK to teach Business Education subjects. On the other hand, the results also indicate that the teachers do not possess both technology knowledge, technology CK, TPK and TPACK.

8.9   RESEARCH QUESTION 5

How can TPACK be used to minimise the challenges and difficulties in the teaching and learning of Business Education in Nigerian secondary schools?

The findings in Chapter Five (Tables 5.4, 5.5, 5.6 and 5.15), the analysis results of proficiency levels of technology use, indicated that teachers perceive themselves not competent to integrate technologies in their teaching of Business Education. The analysis results in Table 5.15, reveal

that there is lack of facilitating conditions to enable technology integration in the schools investigated. Similarly, Table 5.30 in Chapter 5, shows that Business Education teachers do not possess TK, TCK, TPK, and TPACK. Additionally, the qualitative analysis results in Chapter Seven show that there are many challenges prohibiting technology integration in secondary schools in Nigeria. The above results indicate that the teachers not only do not integrate technologies in their teaching of Business Education subjects, but they perceive themselves not competent in the use of technology in teaching.

From the discussions above, to minimise the challenges and difficulties in the teaching and learning of Business Education in Nigerian secondary schools, the TPACK framework could be used. First of all, it is of paramount important that the teachers be trained on technology use, which will enable them to acquire TK, TCK, TPK and TPACK, which are important knowledge foundations for integrating technology, and also there should be an enabling environment (facilitating conditions) in the schools to support technology integration. Without facilitating conditions in the schools, it will be impossible to use technology in the teaching and learning classrooms. As a result of the findings the researcher is proposing a model that could be used for professional development to enhance the integration of technology in the teaching and learning of Business Education.

8.10   CONCLUDING REMARKS

From the above-mentioned factors, it is evident that Business Education teachers are willing to integrate technology in their various subjects but they are faced with many prohibitive factors. There is an urgent need to organise development programmes (technology training sections/ seminars), for Business Education teachers that would specifically incorporate the integration of technology in their specific subject areas. Also, after the development programme, there is a need for a follow-up workshop to be organised for the teachers who participated in the training programme twice every year. This should be to ascertain whether there is an improvement in the teacher's use of technology in teaching Business Education Also, access to technology equipment and provision of constant electricity is highly important for integration of technology in Business Education classrooms; otherwise, the training will amount to nothing.

CHAPTER NINE:
RECOMMENDATIONS AND CONCLUSION

9.1   INTRODUCTION

The purpose of this study was to investigate technology integration in Business Education in Nigerian secondary schools. What kind of technologies the teachers use or do not use in their teaching and learning process. In collecting data, survey, focus group discussions, and face-to-face interviews were used at different stages (Christensen & Johnson, 2010). In this study the data were generated one after the other. The research questions that the researcher wanted to answer with the information collected were as follows:

What technologies are being used in Business Education teaching and learning in Nigerian secondary schools?

What challenges are being encountered when technology is being used in the teaching and learning of Business Education?

What factors motivate teachers in the use of technology in the teaching and learning of Business Education in secondary schools in Nigeria?

What knowledge do teachers of Business Education have in terms of TPACK in teaching and learning of Business Education?

How can TPACK be used to minimise the challenges and difficulties in the T&L of Business Education in Nigerian secondary schools?

9.2   SUMMARY OF THE FINDINGS

- On the first question, the results revealed a lack of relevant technologies to teach Business Education in secondary schools in Nigeria. Teachers not using technology in their teaching is a result of lack of access to technologies (tools, applications, web applications). This is a major negative factor affecting technology integration in the teaching and learning of Business Education in Nigerian secondary schools. The analysed data suggested that a majority of Business Education teachers in the secondary schools, lack access to different technologies. Furthermore, it would be a step in the right direction if the government would

encourage Business Education teachers to use technology in teaching by making available necessary and relevant technologies.

- The second question concerned challenges that are being encountered when technology is being used in the teaching and learning of Business Education. The results indicated that teachers were faced with many challenges ranging from lack of access to technologies. In other words, technological tools, applications and web applications were lacking. In most of the schools, teachers were not well supported by the government and PTA members in terms of technology training seminars, and teacher development program, lack of electricity supply to most of the schools, poor policy implementation and as well as some of the teacher's beliefs and misconceptions about technology use, and teacher's lack of technology knowledge. The findings under this particular question show that there is lack of facilitating conditions to enable technology integration in all the secondary schools investigated. Provision of access to technology training and development programs could possibly encourage Business Education teachers to integrate technology in their teaching.

- The third question concerned factors that motivate teachers in the use of technology in the teaching and learning of Business Education in Nigerian secondary schools. The results indicated that majority of Business Education teachers perceive technology integration to encourage support for differentiation and close learner attainment gaps, the results suggested that teachers view technology to enhance teaching and learning, teachers also perceive technology integration in schools to help minimised cost of running school activities. However, the results showed that this emanates from the perceptions Business Education teachers has that would motivate them to use technology if made available to them. This is because a majority of them do not have access to technology, as well as the knowledge to integrate technology in their various classrooms.

- The fourth question intended to identify the knowledge teachers of Business Education have in terms of TPACK in teaching and learning of Business Education. The results revealed that the teachers have CK, PK and PCK. The results also suggested that a majority of Business Education teachers perceive themselves to be incompetent to integrate technology in their teaching activities. In other words, Business Education teachers do not possess TK, TCK, TPK and TPACK. It should be noted that teachers who are not

technologically competent would not do much with the technology even if they have access to the technologies. Therefore, Business Education teachers would not provide the learners with effective teaching.

- The fifth and last question intended to determine how TPACK could be used to minimise the challenges and difficulties in the teaching and learning of Business Education in Nigerian secondary schools. The findings indicate that in order for teachers to integrate technology in the teaching and learning of Business Education, they needed to be trained on technology. In order words, they need to possess the enabling skills and knowledge: TK, TCK, TPK, TPACK, according to TPACK framework to be able to use technology effectively and efficiently in their teaching.

The study identified some of the factors that prohibit technology integration in Business Education teaching and learning in Nigerian secondary schools. Also, previous research studies revealed some of the factors similar to those found by the study. These studies include Ertmer, 1999; Anderson & Maninger, 2007; O'Mahony, 2003; Pelgrum, 2001; Olutola & Olatoye, 2015; Haliso, 2011; Govender, 2006. In South Africa, Govender (2006) in a study conducted in KwaZulu-Natal schools found that there were more teachers teaching across levels of education with little or no technology competence. Olutola and Olatoye (2015) assert that many school teachers are not trained to make use of technological equipment. This was also the case with Business Education teachers in Nigeria. Although, these factors highlighted may not be the only factors prohibiting the integration of technology in the teaching and learning of Business Education in Nigeria, the researcher believe that they could be used as way to understand what the situation is and to improve the challenges facing Business Education in Nigerian secondary schools.

9.3   RECOMMENDATIONS

Based on the results of the research, the researcher is proposing the following model.

Model for professional development in Nigerian secondary schools
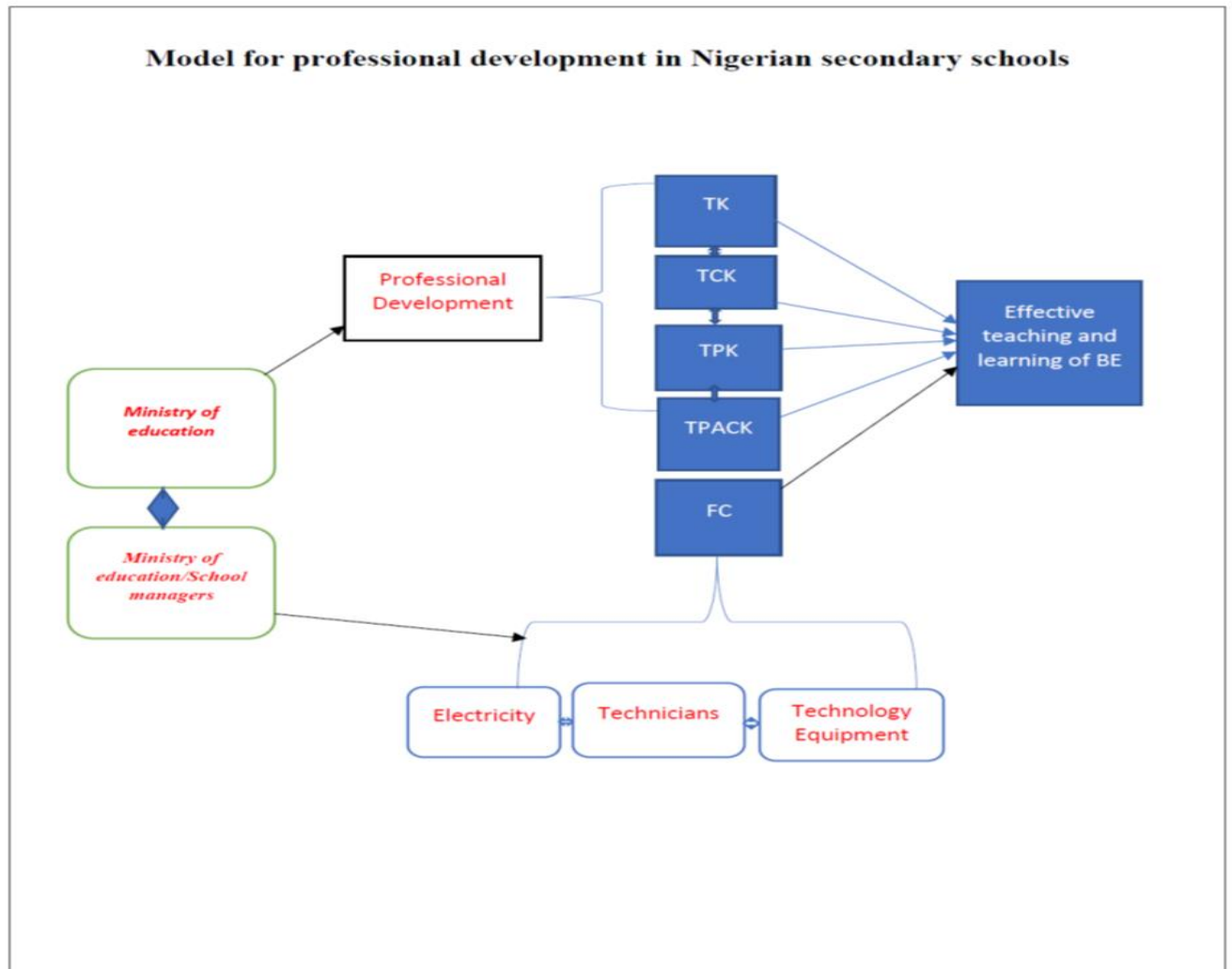
Diagram 9.1:   Model for professional development

9.3.1   Explaining the Model for Professional Development

Business Education teachers in secondary schools should be provided with every necessary opportunity that will enable them to provide effective and efficient learning opportunity for their learners. Therefore, the proposed model suggested the following:

9.3.1.1 *Developing Teachers' TK, TCK, TPK and TPACK*

The results from both quantitative and qualitative data analysis in chapters Five, Six and Seven show that Business Education teachers lack TK to integrate technology in their teaching activities. Based on the results the model suggested that the government and the school managers should make provision for technology training sessions as well as professional development programmes available for Business Education teachers. The proposed model suggests a professional development program that would enable Business Education teachers in Nigerian secondary schools to realise the aspects of technology knowledge that would assist them to provide effective teaching to their Business Education learners. Niess (2007) believed that when confronted with a new technology, teachers began their TPACK development by first recognising and accepting its pedagogical utility.

Therefore, using the model to develop teachers' TK, TCK, TPK and TPACK, the model recommends that a professional development program or any other formal or informal technology training to be organised for the teachers. Business Education teachers should begin with technology training program where their ICT knowledge stands a better chance to develop fully with different instructional strategies that will help advance them into accepting the use technologies in their teaching. A professional development programme is necessary for Business Education teachers to develop their TK, TCK, TPK and TPACK, because, according to Bandura (1977), mediated experiences obtained through observing successful task performance by others can enhance one's confidence for performing the same tasks. So, by attending technology training workshops and professional development programmes, Business Education teachers will observe others use ICTs to support their own instruction, Business Education teachers will have a good opportunity at the development programs/training workshops to observe how technologies are being integrated with different content and methods of teaching. To Bandura (1977) such experience is essential for skills and knowledge acquisition. Hence, the model suggested that professional development program/technology training workshop is a better place for such experience that could help teachers acquire both TK, TCK, TPK, TPACK, respectively. For instance, teachers observing others integrate technology tools, applications and web applications (Microsoft Word, Excel and PowerPoint, computers, digital cameras, projectors) during presentations at the training program, could be interested to explore the functionality of using the technologies in teaching.

9.3.1.2   *Facilitating conditions*

It is argued that once teachers have developed TK, TCK, TPK and TPACK, the next thing is to try to implement their acquired knowledge. Niess (2007) argued that once teachers have accepted an ICT tool, they will begin to make appropriate pedagogical use adapting from lesson examples available to them. Based on the findings of the study, the model is recommending that facilitating conditions be put in place to enable technology use in the schools. This is because even teachers who are experienced in technology use cannot use technology if the enabling conditions are not in place. Therefore, it is assumed that without enabling conditions in the schools, integration of technology in teaching and learning of Business Education may not take place. Therefore, the model suggests ways to enable facilitation conditions. The government through the Ministry of Education should promote approaches to digital infrastructure in schools that put users' needs (teachers and learners) at the heart of the design. The government and the school managers should encourage and facilitate the development of partnerships that will improve digital access and digital skills development opportunities for the teachers and learners.

9.3.1.3   *Government effort towards integrating technology in secondary schools*

In Nigeria, studies (JT & Mbachu, 2015; Garba, Singh, Kaur, Yusuf & Ziden, 2013; Yusuf, 2005) have shown that nothing much has been done in terms of the implementation of integration of technology into the teaching and learning in all levels of education in the country. Although, the Nigerian government in quest for development in all sectors of the economy, adopted integration of information and communication technology into all levels of the education system in her development program. The adoption of the integration of ICT in all levels of education in Nigeria has the following objectives:

- To make ICTs mandatory at all levels of education;
- To develop ICTs curricula for primary, secondary and tertiary institutions;
- Making available study grants and scholarship on ICTs; and
- To ensure ICTs capacity development at zonal, state and local levels.

JT and Mbachu, (2015), Garba et al., (2013) and Yusuf, (2005) identified that in Nigeria there is a national framework for technology integration across all levels of education. At the same time, they authors lamented the poor implementation of technology integration policies in education. For instance, Yusuf (2005) highlighted that there are inadequacies in technology

integration in the Nigerian school system. The author stated that "the inadequacies are that the national policy cannot adequately take care of the need of the Nigerian education system" (Yusuf, 2005, p. 320). JT and Mbachu, (2015), concluded that Nigeria as a country is yet to make available and use ICTs to transform its educational system. Garba et al., (2013) found that there is low level of preparedness to integrate technology in Nigerian schools. Based on the discussion, one can clearly state that there is no concrete plan on the ground by the Nigeria government to facilitate technology integration in the Nigerian education system.

9.3.1.4   *Operationalising the model*

For the ministry of education to operationalise the model and achieve desirable results, the model suggests the following: The Ministry of Education should consider it important to devise a professional development program designed and made accessible to all Business Education teachers. This could be relevant in helping them develop their TK, TCK and TPK because at the training programme there will be subject experts present, and technology experts to train the teachers. The Social Cognition Theory is based on the idea that people learn by observing others (Bandura 1986), so the model recommends professional development program/technology training workshops for Business Education teachers, because they will have the chance to discuss with experts in using technologies to teach, and they will learn and develop their TK, TCK, TPK, TPACK, by observing and practising with available technologies. Additionally, it could be quite possible that some of the teachers are technologically competent to a certain level, but would not know how the technologies are compatible to the teaching of Business Education subjects they teach or with the existing teaching methods; and therefore, would be uncertain if they would attain their teaching objectives. Hence, making workshops, professional development program, and other training sections available and accessible to the teacher would play a crucial role in enabling Business Education teachers to obtain the needed TK, TCK, and TPK to fully integrate technology in their teaching of Business Education. Also, studies have found that such kinds of observation, practices, and experiences obtained from development programs helped teachers to become more confident about their technology knowledge and in using ICTs for instructional purposes (Beyerbach, Walsh, & Vannatta, 2001; Brush, Glazewski, Rutowski, Berg, Stromfors, & Hernandez Van-Nest, 2003).

- The Ministry of Education at all levels must ensure that a range of formal and informal professional learning opportunities are made available and accessible to secondary school

Business Education teachers, to equip them with the skills and confidence to utilise digital technology appropriately, and effectively in their various classrooms. To help teachers achieve their full potentials in technology integration, the government through the ministry of education should provide guidance at national and local level around teacher access to digital technology (JT & Mbachu, 2015).

- The model also suggests that Business Education teachers after their professional development, need to be provided with access to a range of career-long professional learning opportunities that will allow them to make the most effective use of TK, TCK, and technology PK to enrich their teaching, and develop the digital skills of their learners. Similarly, the Ministry of Education at both national and state levels should actively share experiences, information and opportunities that will support the professional development of their teachers in secondary schools, especially Business Education teachers.

- The government through the ministry of education should have an ambitious strategy regarding the use of digital technology in schools and actively look for opportunities to continually invest in a sustainable digital infrastructure, including employing technicians/technology experts to work in the schools as well as the procurement of appropriate digital devices (Brush et al., 2003).

- Importantly, the government, through the Ministry of Education must ensure that the teachers and the learners are involved in sharing their digital experiences and skills. Hence, computer labs, access to the internet, constant electricity supply is highly needed and recommended in the schools (Yusuf, 2005; Beyerbach et al., 2001).

- All teachers and learners including those with additional support needs should able to access appropriate digital technology for learning and teaching. Finally, every plan for facilitating conditions must ensure that all learners become resilient users of digital technology and can stay safe online.

- Additionally, school managers must ensure that students and newly qualified teachers posted to their schools are sufficiently supported in the appropriate and effective use of digital technology in teaching and learning.

- Business Education secondary school curriculum need to be designed to include aspects of technology integration that are relevant to the teaching of Business Education. For instance, technology resources/materials that include subject-specific learning activities that could

guide teachers how the technology can be integrated in Business Education classrooms classroom (Gumedze, 2017).

Hence, if all the above are made available to the schools, there is a possibility that the integration of technology can be possible, and effective teaching and learning of Business Education could be possible in Nigerian secondary schools.

9.4   JUSTIFICATION OF THE PROPOSED MODEL

In this study, the descriptive analysis results in Chapter Five, (Table 5.7), indicated that most of the teachers perceived that using technology would improve education and that integrating technology in the teaching of Business Education offers real advantages over traditional methods of instruction. This implies that teachers' willingness to integrate technology into teaching is influenced by knowledge of perceived benefits of technology integration in teaching and learning. The results presented in Chapter Five show that teachers' perceived adoption and use of technology in the teaching and learning of Business Education in Nigerian secondary schools is influenced by the belief that using technologies will be effortless. Hence technology integration would make the subject matter interesting to the students (Table 5.8). Therefore, the results would appear to mean that if the teachers think that technology integration is consistent with the way students learn, or improve the way students learn; it would be likely that Business Education teachers may prefer to integrate technology in their classes (Gumede, 2017). Also, Petko (2012) assert that the perceived effectiveness of technology is one of the essential predictors of the frequency of classroom use of technology.

The proposed model for professional development in secondary schools in Nigeria indicates the factors that play a role in effective teaching and learning. The results in Chapter Five, (Table, 5.18), Table, 5.20) and (Table, 5.22) indicate that most teachers possess a significant amount of PK and CK, and PCK respectively, to teach Business Education subjects in the secondary education. On the other hand, the results in Chapter Five, (Table, 5.16, Table, 5.24, Table, 5.26, and Table, 5.28) also reveal that Business Education teachers lack TK, TPK, TCK, TPACK, which means that Business Education teachers perceive themselves not competent to use technology to teach. Therefore, the results mean that the majority of the teachers do not possess technology knowledge or skills to integrate technology in the teaching of Business Education.

On the other hand, in the teaching and learning environment pedagogy not only refers to the accuracy of knowledge but the effectiveness of the teaching on the students' learning. So, the key argument is that a person may know everything but does not know how to teach. It means that teachers should design lessons based on how students can best learn the specific course material. In this 21st century, it is clear that technology has impacted the CK that teachers teach the student. In this context, it is very useful for explaining and understanding teachers' knowledge of how Business Education subject matter, teaching and learning are transformed by the application of technology (for instance, the changes in the nature of business teaching, new methods and tools used to solve problems in Business Education disciplines, the use of simulation representations in a specific business subjects, concept mapping techniques in business studies etc.).

Also, seeing the three knowledge elements (TK, PK, CK) in isolation may not assist teachers in understanding the full essence of technology integration in teaching and learning. The study argues that understanding all the additional knowledge elements (PCK, TCK, TPK, TPACK) could enable the teacher to make a difference in his or her teaching activities. The proposed model is concerned with how to forge links and connections among different content-based ideas, and the flexibility that comes from exploring alternative ways of looking at the same idea or problem, and more (Koehler et al., 2007).

TPK as an essential body of knowledge highlights the existence, components and capabilities of various technologies as they are integrated into teaching and learning activities or environments. TCK is considered an understanding of the manner in which technology and content influence and constrain one another in the teaching and learning environment. TCK involves understanding the manner in which technology and content are reciprocally related to each other (Koehler et al., 2007). TCK encompasses understanding and communicating representations of concepts using technologies; pedagogical techniques that apply technologies appropriately to teach content in differentiated ways according to students' learning needs (Mishra and Koehler, 2009; Niess, Lee, and Kajder, 2008). TPACK is different from knowledge of its individual component concepts and their intersections. It arises instead of multiple interactions among content, pedagogical, technological, and contextual knowledge (Koehler et al., 2007). It is a body of knowledge that is very important in teaching and learning activities, because of its belief that technology determines the use of content and pedagogy knowledge based on the issues that teachers encounter in education (Harris et al., 2009).

Therefore, the main emphasis of the proposed model is that technology integration in teaching and learning of Business Education requires understanding the dynamic, transactional relationship between the knowledge components, and the need to have an enabling environment that supports technology integration in teaching and learning.

Okenjom, et al., (2016) assert that professional development program, workshop, and technology training are highly needed for integration of technology in Nigerian secondary schools, and for the teaching and learning of Business Education. Birch, cited in Drexler, Baralt, and Dawson, (2008), believed that the most cited reason for lack of implementation of new technology in schools is lack of professional development. Okenjom, et al., (2016) recommended that teachers in secondary schools need adequate training and education on the integration of technology for reliable, appropriate and effective teaching. From the quantitative and qualitative data analysis results, in Chapters Five and Six it was clear that some of the teachers understood the importance of integrating technology in their teaching. Hence, they had started using their cell phones to access teaching resources that relate to the subjects online. It would appear that teachers' knowledge to use technology can be easily achieved if teachers could have access to a professional development program, access to technologies, technicians to assist them, subject experts and constant electricity. Once these are made available to the teachers then effective teaching and learning of Business Education in the Nigerian secondary schools could be a possibility, and that would mean according to UTAUT theory that facilitating conditions to integrate technology are available in Nigerian secondary schools. Hence, adopting the proposed model to train Business Education teachers to integrate technology in their various classrooms is simple and easy.

9.5   LIMITATIONS OF THE STUDY

This study is limited to Business Education teachers teaching in secondary schools that are registered with the ministry of education in Imo State Nigeria. There is a possibility that there might be other Business Education teachers in schools that are not registered with government but are using technology in their teaching. Future investigation should include non-registered schools, and teachers from other disciplines.

9.6   CONCLUSION

The major factors on the integration of technology in the teaching and learning of Business Education in Nigeria are:

Lack of government commitment (Ministry of Education) regarding training of Business Education teachers on technology use, and provision of technology equipment. A majority of the Business Education teachers perceive themselves as not competent in the use of technology in teaching. Findings also show that some schools do not even have a single set of computers. Almost all the schools involved do not have professional development plans for their teachers, which shows that technology use in Nigerian secondary schools is not taken seriously. In this case, facilitating conditions as a construct in UTAUT theory becomes indispensable in technology integration. Findings show that in Nigerian secondary schools there is a lack of facilitating conditions (infrastructures, electricity, computer lab, policy implementation, technicians, and teacher development programs) to enable technology integration.

To conclude, it is assumed that if facilitating conditions are considered and made available technology integration into teaching and learning of Business Education will become a reality in Nigerian secondary schools.

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APPENDICES

APPENDIX A Ethical Clearance

UNIVERSITY OF ™
KWAZULU-NATAL

INYUVESI
YAKWAZULU-NATALI

01 June 2017

Mr Clinton Chidiebere Anyanwu (211557877)
School of Education
Edgewood Campus

Dear Mr Anyanwu,

Protocol reference number: HSS/0605/017D
Project title: Investigating technology integration in Business Education in Nigerian secondary schools: A critical analysis

Approval Notification – Expedited Application

In response to your application received on 22 May 2017, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully
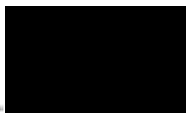
Dr Shenuka Singh (Chair)

/ms

Cc Supervisor: Dr J Ngwenya and Professor D Govender
Cc Academic Leader Research: Dr SB Khoza
Cc School Administrator: Ms Tyzer Khumalo

Humanities & Social Sciences Research Ethics Committee
Dr Shenuka Singh (Chair)
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609   Email: ximbad@ukzn.ac.za / snymanm@ukzn.ac.za / mohunp@ukzn.ac.za
Website: www.ukzn.ac.za

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APPENDIX B Permission from the Ministry of Education

IMO STATE OF NIGERIA

MINISTRY OF BASIC AND SECONDARY EDUCATION

IMO STATE SECRETARIAL COMPLEX, BLOCK 3, PORT-HARCOURT ROAD

P.M.B 1309, OWERRI, IMO STATE, NIGERIA

E-MAIL: ministryodbasicandsecondaryeducation@imostate.gov.ng

Your ref: ------------------------

Our ref: MOE/UBSE/PP.813/1/43

Date: 4th June 2017

CLINTON C ANYANWU

SCHOOL OF EDUCATION

UNIVERSITY OF KWAZULU-NATAL

SOUTH AFRICA

PERMISSION TO CARRYOUT RESEARCH WORK IN SECONDARY SCHOOLS

The above matter refers,

Permission is hereby granted to carryout doctoral research work in selected secondary schools in Imo state, Nigeria subject to the following conditions:

1. You make all arrangements and resources concerning your research available.
2. School programme are not interrupted.
3. Schools and teachers are not identifiable in any way from the final outcome of the research work.
4. A copy of this letter should be made available to teacher and principals of the selected schools where the research is to be conducted.

Goodluck

UZODIMMA L.C

Director (UBSE)

For: Hon. Commissioner

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APPENDIX C Letter to the Principal: Permission to Conduct Research

Sir/Madam, you are kindly requested to fill in the attached declaration and consent form which acknowledges the permission granted to undertake my research in your school.

I guarantee that the information gathered will be used for the purpose of the research only. For further information regarding this research you may contact either myself or my supervisors Dr Ngwenya, J. on (+2731-260 3621; Ngwenyaj@ukzn.ac.za), Prof. Govender, D. on (+2731-2604328; Govenderd50@ukzn.ac.za), and Anyanwu Clinton Chidiebere on (+27312603937; +27846440813) or (211557877@stu.ukzn.ac.za or ezinnechidiebere@gmail.com)

Your cooperation will be appreciated

Anyanwu Clinton Chidiebere

I, IHEOHWE SAMUEL O. ..... The Principal, Eziagbogu Secondary School, Eziagbogu, Ezinnehitte Mbaise LGA, Imo State, Nigeria hereby grant permission for the research to be conducted at my school.

Signature of Principal   Official Stamp

Date 21/8/17

to complete a consent form. Their participation in this study is voluntary.

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APPENDIX D Informed Consent of Business Education teachers

University of KwaZulu-Natal
Edgewood Campus
Private Bag X03
Ashwood
3605
03 April, 2017

Dear Participant

INFORMED CONSENT LETTER

My name is Anyanwu Clinton Chidiebere a student studying for a Doctor of Philosophy degree in Business Education at the University of KwaZulu-Natal, South Africa. My research study is titled: Investigating technology integration in Business Education in Nigerian secondary schools: A critical analysis. This study is focused on assessing technology integration in Business Education in Nigerian secondary schools, and to use technological pedagogical and content knowledge (TPACK) to inform teacher pedagogy in secondary schools in Nigeria, and the unified theory of acceptance and use of technology (UTAUT) will be used to understand what determines Business Education teachers to use or not to use technology in their teaching.

I am interested in asking you some questions via questionnaire, face-to-face interviews and focus group discussions.

Please note that:

- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a population member opinion.
- The questionnaire may take you 45 minutes to complete and face-to-face interviews and focus group discussion may last for about 45minutes and may be split depending on your preference.

- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- Data will be stored in secure storage and destroyed after 5 years.
- You have a choice to participate, not participate or stop participating in the research. You will not be penalized for taking such an action.
- Your involvement is purely for academic purposes only, and there are no financial benefits involved.
- If you are willing to be interviewed, please indicate (by ticking as applicable) whether or not you are willing to allow the interview to be recorded by the following equipment:

	WILLING	NOT WILLING
AUDIO EQUIPMENT		
VIDEO EQUIPMENT		

I can be contacted at:
Email: 211557677@stu.ukzn.ac.za or ezinnechidiebere@gmail.com
Phone: +27312603739

My supervisors are:

Dr. Ngwenya, J. who is located at the School of Education, department of Commerce Education. Edgewood campus of the University of KwaZulu-Natal, South Africa
Contact details: +27312603621
Email: Ngwenyaj@ukzn.ac.za

Prof. Govender, D. who is located at the School of Education. Science and Technology cluster, Edgewood campus of the University of KwaZulu-Natal, South Africa.
Contact details: +27312603428
Email: Govenderd50@ukzn.ac.za

Thank you for your contribution to this research.

DECLARATION

I _____ (full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

_____
Signature of participant Date

SAMPLE QUESTIONNAIRE

TEACHER TECHNOLOGY SURVEY

Adapted from Vannatta & O'Bannon (2002) and Abdulkafi Albirini (2004)

Thank you for accepting this questionnaire. This questionnaire is confidential and will not be used to identify you as an individual. We appreciate you assisting us by completing this questionnaire. The results of this research will enable us to formulate a developmental model for effective teaching and learning of Business Education subjects in our schools. Please be honest when completing the following details:

1. **NAME OF SCHOOL**:

   _____

2. **GENDER**:

Female	Male

4. **AGE**:

YEARS	TICK
21 or younger	
22 to 30	
31 to 40	
41 to 50	
51 to 60	
61 or older	

5. **PLEASE INDICATE THE SUBJECTS THAT YOU TEACH AND THE NUMBER OF LEARNERS IN YOUR SUBJECT CLASS.**

	SUBJECTS	TICK	NO. OF LEARNERS		SUBJECTS	TICK	NO. OF LEARNERS
1	English			14	Agricultural Science		
2	Igbo language			15	Art		
3	Physics			16	Religious Studies		
4	Biology			17	Computer Literacy		
5	Computer Studies			18	Physical Education		
6	Mathematics			19	Speech & Drama		
7	Commerce			20	Technical Drawing		
8	Accounting			21	Technology		
9	Business studies			22	Travel & Tourism		
10	Economics			23	Drama		

11	History			24	Technical Drawing		
12	Geography			25	OTHER – Please specify:		
13	Home Economics						

6. PLEASE INDICATE YOUR LEVEL OF TERTIARY QUALIFICATION:

Diploma	Bachelor's Degree	Honours degree	Master's degree	Doctorate	Other – Please specify:

HOW OFTEN DO YOU USE THE INTERNET AT HOME?

No computer at home	Have computer but no Internet Access	Daily	Once or twice a week	Once or twice a month	Less than once a month	Never

7.

8. FOR WHAT PURPOSE DO YOU USE THE INTERNET AND HOW OFTEN?

PURPOSE	Daily	Once or twice a Week	Once or twice a month	Less than once a month	Never
Teaching					
On-line Banking					
On-line Shopping					
Research					
News					
Educational material					
Games					
Vacation Planning					
Communication e.g. E-mail & Chat					
Download music, movies etc.					

Other- specify :					

9. INDICATE THE MOST SIGNIFICANT FACTOR THAT IS PREVENTING YOU FROM USING A COMPUTER.

FACTORS	TICK
I use a Computer	
No Computer	
No Computer Skills	
No time	
Not interested	
No need	
Other – specify:	

The purpose of the next three tables is to examine your attitudes toward the introduction of ICT into Nigerian schools.

10. Please indicate your reaction to each of the following statements by circling the number that represents your level of agreement or disagreement with it. Make sure to respond to every statement.

NO.	STATEMENT	Strongly Disagree	Disagree	Neutral l	Agree e	Strongly Agree
1	Computers do not scare me at all.	1	2	3	4	5
2	I am glad there are more computers these days.	1	2	3	4	5
3	I do not like talking with others about computers.	1	2	3	4	5
4	I dislike using computers in teaching.	1	2	3	4	5
5	Schools would be a better place without computers.	1	2	3	4	5
6	Students must use computers in all subject matters.	1	2	3	4	5
7	Learning about computers is a waste of time.	1	2	3	4	5
8	I do not think I would ever need a computer in my classroom.	1	2	3	4	5
9	I would rather do things by hand than with a computer.	1	2	3	4	5
10	If I had spare money I would buy a computer.	1	2	3	4	5

11	I would avoid computers as much as possible.	1	2	3	4	5
12	I would like to learn more about computers.	1	2	3	4	5
13	I have no intention to use computers in the near future.	1	2	3	4	5

11. Please indicate your reaction to each of the following statements by circling the number that represents your level of agreement or disagreement with it. Make sure to respond to every statement.

NO.	STATEMENT	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Computer technology cannot improve the quality of a learners' learning.	1	2	3	4	5
2	Computers have no place in schools.	1	2	3	4	5
3	Class time is too limited for computer use.	1	2	3	4	5
4	It would be difficult for me to learn to use the computer in teaching.	1	2	3	4	5
5	I have no difficulty in understanding the basic functions of computers.	1	2	3	4	5
6	Everyone can easily learn to operate a computer.	1	2	3	4	5
7	I have never seen computers at work.	1	2	3	4	5
8	I have never seen computers used as an educational tool.	1	2	3	4	5
10	I have seen some Business Education teachers use computers for Educational purposes.	1	2	3	4	5

12. Please indicate your reaction to each of the following statements by circling the number that represents your level of agreement or disagreement with it. Make sure to respond to every statement.

NO.	STATEMENT	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1	Computers will not make any difference in our classrooms, schools or lives.	1	2	3	4	5
2	Learners need to know how to use computers for their future jobs.	1	2	3	4	5
3	Learners prefer to learn from teachers rather than computers.	1	2	3	4	5
4	We need computers that better suit the African culture and identity.	1	2	3	4	5
5	Computers will improve our standard of living.	1	2	3	4	5
6	Using computers will not hinder African generations from learning their traditions.	1	2	3	4	5
7	Computers are proliferating too fast.	1	2	3	4	5
8	Computers will increase our dependence on foreign countries.	1	2	3	4	5
9	There are other social issues that need to be addressed first before implementing computers in education.	1	2	3	4	5
10	Computers will make our lives easier.	1	2	3	4	5
12	Computers dehumanize society.	1	2	3	4	5
13	Working with computers does not diminish peoples' relationships with one another.	1	2	3	4	5
14						
15	Computers encourage unethical practices.	1	2	3	4	5
16	Computers should be a priority in education.	1	2	3	4	5

13. IF A COMPUTER WAS MADE FREELY AVAILABLE TO YOU AND YOU KNEW HOW TO USE IT, WHAT WOULD YOU LIKE TO USE THE COMPUTER FOR AND HOW OFTEN DO YOU EXPECT TO USE IT FOR THESE PURPOSES?

PURPOSE	Daily	Once or twice a Week	Once or twice a month	Less than once a month	Never
Teaching					
On-line Banking					
On-line Shopping					
Research					
News					
Educational material					
Games					
Vacation Planning					
Communication e.g. E-mail & Chat					
Download music, movies etc.					
Other- specify :					

Please turn over…

14. In **TABLE 1** please indicate technologies you have USED and the FREQUENCY by marking the appropriate column. If you are not sure of a tool please indicate in column "NONE".

TABLE 1

NO.		FREQUENCY			
	TECHNOLOGY:	EVERYDAY	ONCE _TWICE IN A WEEK	MONTHLY	NONE
1	Computer				
2	Digital Camera				
3	Scanner				
4	LCD Panel and or Data Projector				
5	Video Conferencing System				

	APPLICATIONS:				
6	Word Processing				
7	Database				
8	Spreadsheet				
9	Graphics Program				
10	Presentation Software (Power Point)				
11	Software (specific to your subject e.g. GIS, CAD, PASTEL)				
	WEB APPLICATIONS:				
12	Website Development				
13	Electronic References (e.g. EnCarta., World Book)				
14	Discussion Groups, Listservers				
15	Email				
16	Internet (WWW)				
17	Assistive Technologies (for the disabled e.g. deaf, no arms)				

14.   In **TABLE 2** please indicate your **level of proficiency** for each of the following computer tools   and/or applications by marking the appropriate column. If you are not sure of a tool or application please indicate in column "NONE".

TABLE 1

NO.	TOOL / APPLICATION	PROFICIENCY			
		HIGH	MODERATE	LITTLE	NONE
	TECHNOLOGY:				
1	Computer				
2	Digital Camera				
3	Scanner				
4	LCD Panel and or Data Projector				
5	Video Conferencing System				
	APPLICATIONS:				
6	Word Processing				
7	Database				

8	Spreadsheet				
9	Graphics Program				
10	Presentation Software (Power Point)				
11	Software (specific to your subject e.g. GIS, CAD, PASTEL)				
	WEB APPLICATIONS:				
12	Website Development				
13	Electronic References (e.g. EnCarta., World Book)				
14	Discussion Groups, Listservers				
15	Email				
16	Internet (WWW)				
17	Assistive Technologies (for the disabled e.g. deaf, no arms)				

Please indicate your reaction to each of the following "**STATEMENTS**" by circling the number that represents your level of agreement or disagreement with it.

No	ITEMS	Meanings	Statements	Strongly disagree	disagree	neutral	agree	strongly agree
	Performance expectancy	The degree to which an individual believes that using the system will help him or her to attain gains in job performance	Computers can enhance a Learners' learning.	1	2	3	4	5
			Computers would motivate learners to do more study.	1	2	3	4	5
			Using computer technology in the classroom will make the subject matter more interesting.	1	2	3	4	5
			Computer use fits well into my curriculum goals	1	2	3	4	5
	Effort expectancy	The degree of ease associated with the use of the system.	Computers are a fast and efficient way of getting information.	1	2	3	4	5
			Computers save time and effort.	1	2	3	4	5

			Using computers is enjoyable	1	2	3	4	5
			Teaching with computers offers real advantages over traditional methods of instruction	1	2	3	4	5

No	ITEMS	Meanings	Statements	Strongly disagree	disagree	neutral	agree	strongly agree
	Social influence	The degree to which an individual perceives that important others believe he or she should use the new system.	Computers have proved to be effective learning tools worldwide	1	2	3	4	5
			Knowing about computers earns one the respect of others	1	2	3	4	5
			People who are skilled in computers have privileges not available to others	1	2	3	4	5
	Facilitating conditions	The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.	We have a place to go if we have a question about technology	1	2	3	4	5

				1	2	3	4	5
			There is an institutional support technology program	1	2	3	4	5
			Technical infrastructure exist to support use of technology	1	2	3	4	5
			I know how to solve my own technical problems	1	2	3	4	5

What knowledge do teachers of Business Education have in terms of TPACK in teaching and learning of Business Education?

Questionnaire for Technological Knowledge (TK)

		Agree	Strongly agree	Disagree	Strongly disagree	Neither agree nor disagree
1	I know how to solve my own technical problems.	1	2	3	4	5
2	I can learn technology easily.	1	2	3	4	5
3	I keep up with important news about technologies.	1	2	3	4	5
4	I frequently play around the technology	1	2	3	4	5
5	I know about a lot of different technologies.	1	2	3	4	5
6	I have the technical skills I need to use technology.	1	2	3	4	5
7	I know about basic component of computer.	1	2	3	4	5
8	I know how to use word processing program.	1	2	3	4	5
9	I know how to use spreadsheet.	1	2	3	4	5
10	I know how to use presentation program.	1	2	3	4	5
11	I know how to use printer, scanner, projector, and digital camera.	1	2	3	4	5
12	I can save data in digital media	1	2	3	4	5
13	I use internet as communication media.	1	2	3	4	5
14	I use internet as my learning/information source.	1	2	3	4	5
		1	2	3	4	5

		Agree	Strongly agree	Disagree	Strongly disagree	Neither agree nor disagree
	Questionnaire for Pedagogical Knowledge (PK)					
1	I know how to assess student performance in a classroom.	1	2	3	4	5
2	I can adapt my teaching based-upon what students currently understand or do not understand.	1	2	3	4	5
3	I can adapt my teaching style to different learners.	1	2	3	4	5
4	I can assess student learning in multiple ways.	1	2	3	4	5
5	I can use wide range of teaching approaches in classroom setting.	1	2	3	4	5
6	I am familiar with common student understandings and misconceptions.	1	2	3	4	5
7	I know how to organize and maintain classroom management.	1	2	3	4	5

	Questionnaire for Content Knowledge (CK)					
		Agree	Strongly agree	Disagree	Strongly disagree	Neither agree nor disagree
1	I have sufficient knowledge about Economics/Accounting/Commerce/Business studies/Business management.	1	2	3	4	5
2	I have various ways and strategies of developing my understanding of Economics/Accounting/Commerce/Business studies/Business management.	1	2	3	4	5
3	I keep developing my knowledge repertoire in Economics/Accounting/Commerce/Business studies/Business management.	1	2	3	4	5

Questionnaire for Technological Pedagogical Knowledge (TPK)

		Agree	Strongly agree	Disagree	Strongly disagree	Neither agree nor disagree
1	I can choose technologies that enhance the teaching approaches for a lesson.	1	2	3	4	5
2	I can choose technologies that enhance students' learning for a lesson.	1	2	3	4	5
3	My teaching profession has caused me to think more deeply about how technology could influence the teaching approaches I use in my classroom.	1	2	3	4	5
4	I am thinking critically about how to use technology in my classroom.	1	2	3	4	5
5	I can adapt the use of the technologies that I am learning about to different teaching activities.	1	2	3	4	5
6	I can select technologies to use in my classroom that enhance what I teach, how I teach, and what students learn.	1	2	3	4	5
7	I can use strategies that combine content, technologies and teaching approaches that I learn about in my coursework in my classroom.	1	2	3	4	5
8	I can provide leadership in helping others to coordinate the use of content, technologies and teaching approaches at my school and/or district.	1	2	3	4	5
9	I can choose technologies that enhance the content for a lesson.	1	2	3	4	5

Questionnaire for Technological Content Knowledge (TCK)

		Agree	Strongly agree	Disagree	Strongly disagree	Neither agree nor disagree
1	I know about technology that I can use for understanding and doing my work	1	2	3	4	5
2	I know computer applications related to Economics/Accounting/Commerce/Business studies/Business management.	1	2	3	4	5
3	I use the technologies to develop learning activity and students' tasks	1	2	3	4	5
4	I use technologies as my source to develop my own knowledge	1	2	3	4	5

Questionnaire for Pedagogical Content Knowledge (PCK)

		Agree	Strongly agree	Disagree	Strongly disagree	Neither agree nor disagree
1	I can select effective teaching approaches to guide student thinking and learning in Economics/Accounting/Business studies/Commerce/Business management	1	2	3	4	5
2	I make my own lesson plan	1	2	3	4	5
3	I can make difficult lesson easier for students to understand	1	2	3	4	5
4	I make questions by my own to measure my students' understanding towards the lesson	1	2	3	4	5

	Questionnaire for Technological Pedagogical and Content Knowledge (TPACK)					
		Agree	Strongly agree	Disagree	Strongly disagree	Neither agree nor disagree
1	I can teach lessons that appropriately combine any of Economics/Accounting/Business studies/Business management, technologies, and teaching approaches.	1	2	3	4	5
2	I help my colleagues to understand how to integrate technologies, and teaching approaches in their teaching of Economics/Accounting/Business studies/Business management,	1	2	3	4	5
3	I use various approaches with various software to enhance students' understanding in learning of Economics/Accounting/Business studies/Business management courses.	1	2	3	4	5

APPENDIX F Focus Group Discussion Schedule

Focus group discussions

Key research question 3

• **What factors motivate the teachers in use of technology in the teaching of Business Education in secondary schools?**

1) What motivates you to use or not to use technology in your teaching?

2) What competencies do you have in technology?

3) What uses of technology do you find relevant and meaningful?

4) Are there any uses of technology you find valuable that you don't think you'll   be able to use? Why?

5) What support do you receive in terms of technology and pedagogical use of ICT? a) How has your school supported you in terms of technology integration?

b) How has the school supported you with technology?

6) What are some of the most creative approaches you've seen in terms of teaching learners to use technology in their future classrooms?

a) What is the most successful way to teach learners how to integrate technology?

APPENDIX G Interview Transcript

A. Researcher (18) : face to face single participant.

Question 1: How would you define technology integration in the business education classroom?

Participant: Technology integration is when you are trying to use technology to teach business education. It can also mean when you are trying to use available devices such as, computers, such as cell phones or internet in making teaching of business education easier for us the teachers and for our students.

Question 2: Can you clarify your understanding of different kinds of technology such as hard ware, software and its use.

Participant: Thinking about the hardware, hardware are something like computers which we can see, then cell phones which is all over the place and everywhere in the market that people can go and buy and also tablets and even laptops and desktops.

Then thinking about software, they are the operating system or the capacity of the hardware to function. Those software include things like Microsoft word or Microsoft excel, which is common and which is the one I know and I can use comfortably.

Question 3. How would you define the role of technology in business education?

Participant: The role of technology in our school here and with my teaching experience with my students, is not as if we don't want technology, but you see we don't have resources, the resources are not available, but from my understanding and the research I have done, I know that if technology is used to teach business education, it can make things easier for us the teachers and then it will make learning easier for the students. You know we are in a computer age now so everything about life and even business is all about computer these days. People can now go online and do shopping and all that. Even the marketing is done with computers and technology so I believe that if you use technology to teach students how to use the technology in terms of this, not only the social media, in terms of shopping, marketing and advertising, it will make things easier for us and for the students.

Question 4. Do you think that technology should be used daily in business education and why?

Participant: Yes I think it can be used, it should be used. Like what I was trying to explain to you, technology can make things like teaching easier when it is available not when it is not available. It will make something like planning our lessons easy as a teacher, and then it will make the students focus on the positive value which they will get from technology and not just the social media and face book they are using it for. So it will make the students understand the positive value of technology. So from what I understand if you use technology every day in teaching, it will also make them to understand the use of technology outside the business world.

Question 5. How do you prepare your business education learners to integrate technology in their future activities?

Participant: The only thing that I can do, I keep saying that if we have the facilities available, just like when you were coming here you must have noticed the structure which they are developing, it is a computer laboratory, but it has taken so long for them to develop it. So the only thing I know I can do in terms of preparing the student to use technology is to give them something like homework, which they can go home and use their computer, they can even use their cell phone and tablets to type, so they can submit their assignment typed and printed as a hard copy and not to using their hands and pen to write in a plain sheet.

Question 6. What educational technology subjects are your business education learners required to take?

Participant: You know business education, most of my students went through junior secondary where they take basic science and technology, so basic science and technology is like integrated science which they all take when they are in junior secondary. Then at this stage (senior secondary) some of them take physics which they do some practical in the laboratory and these practical involves the use of modern technologies or apparatus, then some of them take technical drawing, some of the that one to study engineering, before they get to SS2 where they will be able to choose their area of specialization.

Question 7. Apart from the basic science which they did in junior secondary, what other requirements in terms of technology exist for your business education learners to offer at your school. Do they have computer laboratories where they practice?

Participant: Our computer laboratories, like I told you they are still constructing it, is still under development.

Question 8: For how long now?

Participant: I have to be sincere with you, it has been long, and since five years it has been under construction.

Question 9: Is it a government, non- government or community project.

Participant: I can say it is non-government because there is a philanthropist who promised to develop it and since he started the project and brought it to this level nothing has been done on it till now.

Question 10: What technologies have you used and how do you facilitate technology integration throughout the business education curriculum.

Participant: Like I said I am familiar with Microsoft word and then I have laptop even though I don't bring it to school because sometimes we don't have power supply (electricity) so when I get home I put on my generator and use my laptop and use the Microsoft word which I am used to. Bringing it to business education class the only thing I can do is to give assignments to students and those who do not have computers will go to the cybercafé type it and submit to me, that way they can at least learn how to use the Microsoft word.

Question 11: How do you see technology fitting into teaching and learning in secondary business education programme in Nigeria? Looking at what you have said now that in your school there is not much availability technology and most of your student are writing their final exam and some of them will progress to the university while some will look for jobs. Looking at the era we are in now where technology is the order of the day, so how do you see technology fitting into teaching and learning in secondary schools in Nigeria to do you think is something like a dream that will ever be realised or what?

Participant: It can be done, Nigeria like they said is the giant of Africa, but we have the resources if we get a good government which can bring and equip this schools with the technology, why not why can't we can do it. Some of this students they are intelligent that if you expose them and give them technology to use in their schools they will do very well. But the way things are going, like the infrastructure they are developing in terms of the laboratory not been completed and the government is not interested in the project, so how do we realise that. So it is a very difficult thing, except for when you go to some private schools they are equipped with computers and they train their student. But everybody cannot afford private schools. So it is a difficult situation.

Question 12: How exposed do you think business education learners are in terms of technology outside their required subjects? How exposed do you think business education learners are in terms of technology outside school?

Participant: the only exposure I can see is the social media for some of them who play computer game, I think they only focus on those things that are not valuable to them. So they are exposed, since they can use their phones to browse social media why can they not use their phone to do other things that relate to their academic work. And some of these new generation phones are like computers and you can use the phone to do everything. So I think they are exposed.

Question 13: presently where can business education learners go to if they require any question about business education and technology resources. Are there place and do you have any infrastructure or place they can go to in your school to ask question or even outside the school to receive any help in terms of technology.

Participant: Like I said earlier we have technology teachers here who teach technology, but on the chalk board that is where they only teach technology and the use of computer is something that needs practical so some of them don't even have the opportunity to go into the practical is just the use of the chalk board to teach technology but then these students when they have problems I think they prefer to go to the cybercafé around there home to ask questions rather than to ask their teachers because most times when the teacher teach them is just for them to pass the exams and not that they really know about the practical use of these computers.

Question 14: So what you are saying is that there is no place for your learners to go and ask questions here in your school, besides the teachers.

Participant: Yes besides the teachers, there is no place.

Question 15: what technology competence do the learners graduate with after completing secondary school.

Participant: the only skills available to the students since they are being thought technology without practicals is basically the theory. Although since I give them assignment and they use the cybercafé, I believe they can use Microsoft word and Microsoft excel. Besides this I don't see any other skills which they have.

Question 16: how are teachers in your school using technology within their specific subjects? Have you seen some of your accounting, commerce or business studies teachers using technology to teach?

Participant: I think not accounting or business teachers, the only time I remember is when the physics teacher used a projector, but that happened once. So I haven't seen the accounting or business teachers use projectors.

Question 17: what difficulties have you encountered while teaching business education learners how to use technology in your subject area, because you stated sometimes you do go to class with your cell phone or palmtop to browse. So when using these technologies what difficulties do you encounter.

Participant: I think the difficulty is that some days I manage to bring my laptop to school and there will be no electricity. I guess electricity is the major problem, and most times there is no gas for the generator as well.

Question 18: apart from electricity are there any other challenges that you face?

Participant: other challenge can be that the school does not have a projector even if I decide to teach with it. There is lack of technology resources.

Question 19: where do you go to if you need any technology assistance

Participant: I usually go to the business centres i.e. the cybercafé when I need something to be installed on my laptop.

Question 20: so based on all this, what advice do you have to give to your fellow teachers, the students and the government, in terms of technology integration in teaching and learning in secondary school.

Participant: let me start with the government. 1. the government needs to empower schools, they need to equip the schools with technology facilities. If the government have done their bit in terms of giving the schools resources, then the second step would be to train the teachers because most of the teachers are not trained to use technology. Then after training the teachers, the teachers will in turn train the students. That the only advice as I can't go on lamenting, it is a very simple thing. I have seen most people come here for this kind of interviews and we talk and talk is like pouring water on stone as nothing would be done. The government is not taking care of the schools properly, and the teachers produced are not competent in technology to enable them teach the students. So if the challenges can be taken care of the teachers can use the resources to impact the knowledge the students require.

B. Researcher (15) : face to face single participant.

Researcher: thank you Sir for your time, the interview is just a follow up of the questionnaire you filled in.
Question 1: how would you define technology integration in teaching and learning, for example the integration of technology in business education and other subjects.

Participant: technology integration in the purpose of academics and any area of study, for instance in social studies, has both good and bad effect, so it depends on the individual to choose the most relevant. I can say that technology has helped in various aspects of life, like we now make use of handsets, computers and other electronics, it is through the knowledge of technology that we get this things. so I have to say that technology has helped in all aspects of life such as health, academics and almost every job.

Question 2: can you clarify your understanding on different kinds of technology based on hardware or software and its use.

Participant: in the area of hardware and software, I am still a novice. My area of specialization is internet based research.

Question 3: how would you define the role of technology in teaching and learning.

Participant: technology in the area of academics, as a teacher for you to prepare your lessons and other aspects of classroom management, you may come to a point where you have to do a lot of research, so that you don't become embarrassed before your learners.

Researcher: so you mean to say that technology helps teachers to prepare properly for their lessons.

Participant: yes

Question 4: do you think that technology should be used in teaching and learning?

Participant: yes, because technology is needed even in every aspect of our life. Without technology in teaching and learning, some inventions and research will not be successful. When we impact the knowledge and use of technology in student it will help them to go far in life.

Question 5: how do you prepare your leaners to integrate technology in their future activities.

Participant: preparing my learners depends on the materials we have, in our school we lack so many facilities, like power supply or even most of the technological gadgets which could be used to get the learners prepared. For now we use generator supply power in other to make use of the old gadgets we have keyboard. We also have typewriter which we also use at the moment although they don't give you much satisfaction, until we are able to secure more sophisticated gadgets.

Question 6: what educational technology subjects are your leaners required to take?

Participant: we have computer education, basic science and basic technology.

Question 7: What other requirement in terms of technology exists for your learners in your school?

Participant: like I said before, we have some manual equipment which we make use of, and this is not a developed country as such, so we make use of what we have.

Question 8: what technologies have you used and how do you facilitate technology integration throughout your teaching?

Participant: we make use of wrist watch and work log which are products of technology. Also we have a mower which students use to clear the environment, it is also a product of technology, and of course there are some people who do not know about it.

Question 8: based on all you have said both the equipment and gadgets that are not available to assist in teaching your learners, how do you see technology fitting into teaching and learning in secondary education programme in Nigeria.

Participant: I see technology as a very good invention, because with the help of technology in secondary school, students will not find it difficult to cope with the tertiary institution which is where this technology is much more essential. So it is good to do the introduction for students beforehand. I see technology as a very good thing in secondary level.

Question 9: how exposed do you think your learners are in terms of technology use outside their required subjects.

Participant: to be sincere, I can't tell you that our learners are doing very well or above average in technological issues due to the myopic view of technology in our country and because of lack of power.

Question 10: how do you see learners using technology in other contest outside the school environment, since you said there are many things lacking, power supply, gadgets, and other technological equipment.

Participant: I see them use technology as a simple tool, for instance the handset which they use, they seem to have more experience outside the environment, because outside the school you have some people from a very good background and are more learned and exposed to technology, so they mix up with other brighter peers who tend to teach them more and they also practicalise it more outside also.

Question 10: so presently where can your learners go if they have any question about technology or technological resources.

Participant: normally we send them on research to some cybercafes around.

Question 11: I believe you give your students assignment from time to time, do any of your assignments have any technology requirement as part of the assignment?

Participant: yes they have, because to me in my assignment there are some things, like in showing of instructional materials in teaching we can send them out to go for research and to get a very good field of what they have learnt so far, may be in terms of diagrams and in presentation of charts, they can now go and get a very clear hint of what we need in a particular subject.

Question 12: based on that, what technology competences do your learners leave with after completing secondary education, for example I noticed that some of your students are writing their final exams, so based on your experience, what competence do you think they are graduating with?

Participant: our learners are doing, I do hear some students mention that after graduation they will enrol into computer classes, because they have seen that there are many importance and also a lot to gain through the knowledge of computers. So I can say that they are really interested in getting prepared for the future in terms of technology.

Question 13: are teachers in your school using technology within their specific subjects?

Participant: for us teachers, there are difference in individuals and in teaching too, not all teachers can teach with technology or technological gadgets, although some teachers do try to make use of computer gadgets, to make up with their note to offer to their students.

Question 14: I believe you too as a teacher also try to integrate technology in your teaching, so what difficulties have you encountered while teaching learners how to use technology?

Participant: many challenges, because, if all the facility that I have mentioned that are lacking here in our school were available, it would have been a little challenge to us. But why we are finding more difficult is due to the situation of our country which has also affected the educational system as well, because there are things which the school needs that the government should provide which they haven't been able to provide and as a result the whole system is affected. Like I said previously we lack power supply, and there is no working generator to supplement so all this things are the needs to be met which also possess some difficulties in regards to technological requirements.

Question 14: where do you go to if you need any technological assistance as a teacher

Participant: like I said we go to cybercafes which are not even so close to us. Also with our phone, when they are charged and recharged with data we are able to assess the internet and get some information.

Question 15: so based on all this things, what is your advice to both the government, your fellow teachers and your learners concerning technology integration.

Participant: thank you for the question. To the government, because they owe us more, it is their duty to make sure that government schools are well equipped to in order achieve the best outcome in teaching and learning. Secondly, because the government does not know all the challenges encountered in schools, it is the role of the teachers and learners to present this issues to the government, and when they do it is expected that the government sees that all this things are well equipped, so as to enhance teaching and learning. And to my students, they are also trying so hard to meet up with technological innovations, even though what they are exposed to more here is the theoretical aspect due to the lack of facilities, there are no much practical application since the government has not provided the needed gadgets. So the learners should not give up in trying to seek support wherever and whenever they can.

Researcher: thank you so much for your time.

C. **Researcher (14):** Face to Face interview, single participant.

Researcher: Thank you Sir for the opportunity to interview you
Question 1: How would you define technology integration in teaching and learning?

Participant: from the little knowledge I know about integration, is just a process of inculcating, adopting and implementing the use of technological facilities in teaching and learning.
Question 2: Clarify your understanding of different kinds of technology, like hardware, software and its use.

Participant: You know in recent time the world has become a global village, we have moved from the normal conventional method of teaching to technologically advanced level. You know we have the analogue and digital level, in the analogue, may be the use of some electronic devices like calculator or cell phones and others we can now help you to communicate in teaching and learning. And we have the digital type whereby you can make use of computers and other devices, that you can use to teach from afar and it can also allow the students to access what you have been teaching them with the use of internet and other software.

Question 3 : How would you define the role of technology in teaching and learning.

Participant: I think technology serves as a link in teaching and learning, because with the use of technology, we can be able to access some of the materials that could have taken us some months to access in the libraries, but with the help of the computer technology we can be able to access this materials within some minutes and also can be able to communicate faster to the students.

Question 4: Ok. So based on your response do you think that technology should be used daily in teaching and learning.

Participant: Yes, technology has to be used daily because if we use technology in teaching and learning it will help us to widen our variety so that we can be able to know the current trends in teaching. Because most times if you don't have technology enabled devices in your home you can be using the curriculum you don't know that they are outdated, but with the use of technology you will know what is current and what other people are using. And with the aid of technology you can now have a consensus teaching and learning environment whereby what we teach here in Imo State can still be obtainable in other States. So that whenever the students are taking external exams they can be able to do better.

Question 5: Ok. How do you prepare your learners to integrate technology in their future activities.

Participant: most times I use practical approach because we are privileged to have some computers here in the school, but not the major constrain is that not all the students can be able to access it. But when you expose them to the use of computers at least they can be able to make their lesson notes and do their assignments online, with that I have really help them at least to be able to appreciate what the current trend of teaching and learning has to offer.

Question 6: what educational technology subjects are your learners required to take

Participant: there are many educational software. The one we have is brainfield, and with the use of this brain field over the years a lot of success has been recorded because many of our students that graduated from here did better in the JAMB (Joint Admission and

Matriculation Board) examination, because most the questions they are asked is similar to that which the brainfield can teach them and is self-explanatory, so you don't even the teacher to guide, with brainfield is self-tutored, it can easily teach you. But I think if we get better ones which are more advanced, it will be appreciated.

Question 7: Apart from the brainfield you mentioned, what other requirements in terms of technology exits for leaners in your school.

Participant: I think we need a lot of things. Like you know, teaching requires both audio and visual aids, maybe if we can have a projector so that if you are teaching from afar the students can be able to see what you are doing at the same time. I also think speakers, computers, calculators, and other aids that can enable them to learn faster.

Question 8: so coming to you as a teacher, what technologies have you used and how do you facilitate technology integration throughout your teaching.

Participant: you know formally, we were using just normal use of textbooks, you make your lesson notes, but since we have adopted the use of current technological advanced way of making our lesson notes I don't think we do go back to using textbooks to make research, we make our research by use of internet as we browse through the internet to know the current curriculum that is being used nationwide and with that we can make our lesson notes and paste it online so that the students can access it and print.

Question 9: How do you see technology fitting into teaching and learning in secondary schools in Nigeria.

Participant: I think is not going to be a day job, is going to take a lot of time because the problem is that most of the teachers in the primary and secondary schools are not even computer literate, so I think the best way is that government has to make it compulsory, so that if the teacher can be able to acquire that little knowledge of computer literacy so that they will now inculcate what they have learnt to the student, because I think is the best way to teach now.

Question 10: having said all this, how exposed do you think your learners are in terms of technology use outside the required subjects.

Participant: they are not that really exposed in the sense that they don't have enough of the computers for all the students to be able to lay there hands on. I think majority of them have been able to have the privilege to use the computers that are better equipped than others in other schools because they have been able to record a high level of success in JAMB examination that makes use of the computers. I think some of them are exposed but others still lack the exposure.

Question 11: so how do u see them using technology in other context apart from school environment

Participant: because of the place we found ourselves, this place is a local village and most of the things have not gone online, a lot of people have not really known the importance of technology, I think with time we will get to that level. But for now is not everything that we make use of that, I think is only in school and churches that you can talk about technology.

Question 12: if your students need assistance or more information about technology, where can they go to, do you have any place that they can go to seek such assistance here in school or outside the school.

Participant: they don't have any place to go for now, but I think with time we are trying to make one available for them so that whenever they have technological problems they can be able to lay their hands on that. We are still appealing to the government to see if they can provide such assistance, but for now we don't have any.

Question 13: I believe you give them assignments, does any of your assignments have technology requirement as part of the assignment.

Participant: yes, I think people in senior grade (SS3) most of their assignments have to be online because we have some computers that the SS3 student can be able to use to do their assignment. Normally I don't even like teaching them again with ordinary chalk and paper, I give them assignment from the test book and most times I ask them to type set it and send it to me through emails. And some things they can read online, because we have some text books on the system on brainfield that is self-explanatory and that can teach you all the subjects, so I think the SS3 students are good with the computer.

Question 14. How are your teachers using technology within their specific subject area

Participant: for now I don't think it has been made compulsory for the teachers to start using technology devices, because is only in this ICT centre that you can see a teacher using it, and I don't think the teachers has access to this place for now because of security challenges, I think am the only person making use of it for now.

Question 15: what difficulties have you encountered while teaching your learners how to use technology in your subject area.

Participant: I think the most difficulty I have encountered has to do with light, you know when you are talking about technology you need energy and the most common source of energy here has to do with Power Holding Company Electricity and most times we have electrical challenges because we hardly have light.

Question 16: where do you go to if you need any technology assistance

Participant: I go to the Cyber Cafes and most times it takes a lot of money to move from here to the place that you can be able to access most of the things we need online.

Researcher: thank you so much sir for your time.

Face-to-face interview number 13

Researcher: How would you define technology integration in teaching and learning of Business Education?
Participant: Technology integration is the process of inculcating, adopting, implementing the use of technological facilities in teaching and learning.
Researcher: Clarify your understanding of technologies used in teaching and learning?

Participants: OK ... there are hardware and software, also in this our times the world has become a global village, we have moved from normal conventional methods of teaching to digital methods of teaching. We have the analogue digital level, in the antilog level we have electronic devices like calculators, cell phone that can you as a teacher to teach. We also have another level, the digital level in this level we have, the use of computer, OHP, and other soft wares like email, the use of internet and Wi-Fi the help both the teacher and students to stay connected to each other.
Researcher: How would you define the role of technology in teaching and learning?
Participant: Technology serve as a link between teaching and learning, with the use of technology we have access to materials speedily, also technology enhances teacher – students communication.
Researcher: Do you think that technology should be use daily in teaching and learning?
Participant: Yes, technology should be use daily in teaching and learning, because if technology is used daily in teaching and learning it will help both teacher and students to widen their understanding of the subject (Business education), understand the current trend in the subject area. Also, with the aid of technology schools can have a consensus teaching of Business education. This will help avoid some schools using outdated curriculum while some schools are using current curriculum.

Research: How do you prepare your learning to integrate technology in their future activity?

Participant 13: Sometimes I use practical approach in my teaching because we are privileged to have computer in our school. But the major constraint is that not all the students can access the computers. However, when the students are exposed to technologies they can be able to do their assignment, prepare their lesson notes using technology, and that will make them to appreciate what the current trend of teaching and learning have to offer them.

Research: What educational technology subject are your learners required to take?

Participant 13: Emmmmmm there are many educational software, but the one we have here is called brainfield and the other one is called mmmmm I can remember the name. But I know there are many other once. However, since we started using brainfield we have recorded a lot of success, many of our former students did well in Jamb, because brainfield technology prepared them very well and it's self-explanatory.

Researcher: Apart from the brainfield technology, which other technology are learners exposed to?

Participants: I think we use a lot of things, as we know require both audio and visual technologies. For example, if you have projector you can project what you are teaching so that everyone will see what you are teaching. Also, we use speakers, computers, and calculators to enable us teachers to teach faster and better.

Researcher: Now coming to you as a teacher, what technologies have you used and how do you facilitate technology integration in you teaching?

Participant: Before we do not make you of technology, but since we started adopting technology into teaching and learning, I make use of internet to browse for materials to prepare my lesson notes and to and to know how other teachers in other schools are enacting the curriculum.

Researcher: How do you see technology fitting into teaching and learning in Nigerian secondary schools?

Participants: Is not going to be a day job, its going to take a longer time. The problem is that most of the secondary teachers are not computer literate. I think that the just way is for the government to come up with a program to assist teachers to acquire computer skills/literacy. In so doing teachers will then train their students to use technologies. That what I think and think as the best way to teach presently.

Researcher: How expose do you think your learners are terms of technology use outside their required subject?

Participant: They are not the exposed in the sense that the school do not have enough computers for the students to use and practice, but some of the students that are privileged to use computer are better equipped than others. Yaa some of the students are really exposed while majority of the students are not.

Researcher: How do you see your students using technologies in another context apart from school environment?

Participant: ehhmmmm because of the context we see ourselves a lot of things have not gone online, and many people have not full adopted technology because they have not understood the importance of technology. But with time we will get there but for now its only schools and churches that are making use of technologies.

Researcher: If your students need assistance or information do they have a place to go here in your school or outside the school environ?

Participants: No, they do not have any place to go for such assistance or information. But we are trying to make provision for such needs. We have applied to the government to see if they can help with that

Researcher: Do any of your assignment you give to your students have technology requirement as part of the assignment? Yes, the grade 12 students, their assignment are basically online. They have available computers to do their assignment. Most of the time I give them assignment that required them to go online for information, after that they type their assignment before submitting.

Researcher: How are your teachers using technology within their specific areas?

Participant: emmm for now it has not been made compulsory for teachers to be teaching with technology. Although, it's only in our ICT centre that teaches students with technology facilities. And not every teacher have access to the ICT centre due to security reasons. Therefore, I think its only me in this school that teaches with technology, other teachers don't teach with technology.

What challenges/difficulties have you encountered teaching your learning how to use technologies in their learning?

Participant: I think the most difficulty I have encountered in the issue of electricity because whenever you are talking of technology it goes with energy. Also, In this part of the world we are we have only one source or company that supply electricity, most time we don't have electricity to power the computers. Researcher: Where do you go if you need technology assistance?

Participant: I do go cybercafé, and most times. And it cost a lot of money to travel to the place that I can get reliable information that I need.

Researcher: Thank you sir for your time

Face-to-face interview 12

Researcher: How would you define technology integration in T&L:
Participant: To I will say that technology integration simply means bringing technology into the field of t&l.

Researcher: Clarify your understanding of different kinds of technology?

Participant: There are software and hard ware technologies, for example computers, projectors etc. Also, in more developed countries these gargets are use in the t&l activities.

Researcher: How would you define the role of technology in t&l?

Participant: I would say that technology has come to improve t&l, gone are those days when teaching was all about coming to class then you talk and go that is the (traditional method). But presently, you use technologies to show the students most of the things

you talk about in the classroom. Therefore, I can say that technology is there to improve the quality of t&l

Researcher: Do you think that technology should be use daily in t&l?

Participant: Yes, it should be used. But the only impairment/problem is the cost of implementation. This is true because using technology in classroom teaching and learning involves cost which I know most academic institutions cannot afford the cost of implementation but if am to say, the use of technology should be encouraged, it should used in t&l.

Researcher: How do you prepare your learners to use technology in their future activities?

Participant: In this part of the world, the technologies are not available, but as teachers we try to encourage our students to try and embrace technology. We always try to explain to them what and what they stand to gain from using technology or have technological skills especially at this age, that has term technological age. You know most of the things you do now is online, and also everything in this world now are technologically base

Interview 12 Face-to-face

Researcher: What educational technology subjects are your learners required to take while in secondary schools?

Participant: we have computer studies, and I must say that computer studies should be made compulsory in secondary schools. But the basic problem here is, we do not have the basic facilities, computers, electric power, no professional teachers to computer sciences/studies so it becoming a problem in our schools and in the society. Basically, the students are supposed to be thought basic computer knowledge and even learners in the primary schools are supposed to have basic computer knowledge and how to use computers.

Researcher: **What other computer requirement exist for your learner in your school?**

Participant: Yaa, we have the basic science and technology where they are taught on how to use most of the scientific and technological equipment. That is where the learners are exposed to the modern technologies. Another challenge is that after learning all these things there is no room for them to see those equipment talk less of practicing them especially here in our school.

Researcher: What technologies have used and how do you facilitate technology integration in your teaching?

Participant: I have my personal laptop and handset which I use in browsing for lesson notes and other materials that one came use to support your teaching and some of my students that

also have their personal computers, I do assist them on how to use them to source for material related to their studies so that it will help them enhance their academic performance.

Researcher: How do you see technology fitting into T&L in Nigerian secondary schools?

Participant: In Nigeria the truth of the matter is technology is need in secondary education in Nigeria. That is a very simple truth, like I have said the problem we have is that the equipment are not available, the professional to impact the knowledge of using this equipment are not available, the facilities that will help in facilitating technology in secondary schools are not available. Therefore, the major challenge for technology integration in our schools are the unavailability of technological equipment. Hence, the truth still remain that we need technology in our secondary schools.

Researcher: How exposed do you think your learners are in terms of technology use outside their required field?

Participant: Yaa, I must tell you that most of them are gradually getting exposed especially in the use of this handsets. The challenge still remain that the equipment to use and assist them are not available for example, computers. Also, this equipment are something many parents can afford to for their children, because of the high cost of buying and maintaining them. However, with use of handsets some have beginning to get the benefits of technology.

Researcher: Do you see your learners using technology outside their school environment?

Participant: Yes, I know some the students who have handsets and use it apart from academic work.

Researcher: Where do your learners go if the need technology assistance?

Participant: Yes, we have a place here in the where the learners can go, it's close to the library. But unfortunately, the equipment there are completely outdated. I know in recent times most of our student that we have produced to go the business centres.

Researcher: Do any of your assignment include technology as requirement?

Participant: I do give them assignment and also encourage them to use their handset to browse for information about the assignment and resources. We always encourage them to use their phone to go to the google and other search engine to search for more information that could be useful to their assignment. By so doing they are exposed to the use of technology.

Researcher: Do you see your learners graduating from secondary school with any technology competence/s?

Participant: Yaa, I know about 3 of my students who are good in the use of computers and a quit number of others who can use their phones for many other things.

Researcher: How are your fellow teachers using technology in their teaching?

Participant: Yes, most of our teachers are technologically inclined, we use our phone to browse and update our knowledge. Also, a good number of our teachers use technology on daily basis.

Researcher: What difficulties have you encountered using technology to tech?

Participant: Well like I rightly said, major challenges we are facing here in our school are the unavailability of modern technological equipment, Power supply, finance, everything hovers around finance, the government are not doing enough in terms of providing finance for the technologies we need. Also, the little gargets that we have here, the students find it hard to acclimatise or get use to technological environment. It could be an influence from their family background, or upbringing. This could be because most of the student in their homes they don't use some of these things and their parents could not afford these equipment for them, when all these play together it become insurmountable challenge.

Researcher: Where do you go if you have or need technological assistance?
Participant: There are business centres, business schools around. So one can always go to them for assistance.

Advice: Having said that it is important to integrate technology fully into education. It is also important that government should come in and help us in acquiring the needed equipment. Also, the government should employ teachers who will train the younger once on how to use the gargets. I know that my fellow are ready to embrace into t&l. We have come to the understanding that in this modern era education cannot strive with technology, so they are ready to ingrate technology. But the major work is with the government.

Interview 11 face-to-face

Researcher: How would you define technology integration in t&l?

Participant: Technology integration is all about using all the available resources to make sure that all parts of the technology is reach out to the students

Researcher: Clarify your understanding of different kinds of technology?

Participant: In technology we have the hard ware, like computer components (the monitor, CPU. Have software, like application software and the graphic, words, spreadsheet.

Research: How do you use them in your teaching?

Participant: Because of the unavailability of both the hard ware and the software we find it difficult to use them in our teaching.

Researcher: How would you define the role of technology in T&L?

Participant: The role of technology is the way technology help us to make sure that we work or teach very well, and in making that the students understand the concept the way they are supposed to understand. Therefore, the role of technology in teaching and learning is to enable both the teacher and students to reach to each other without any form of barrier irrespective of the distance.

Researcher: Do you think that technology should be used daily in the teaching and learning?

Participant: Yes, because technology enables us to do things fast and efficiently, therefore it is very important that we make use of technology in our everyday activities.

Technology also help us to carry out educational research to improve quality of teaching and learning.

Researcher: How do you prepare your learning to integrate technology in their daily activities?

Participant: mmmmm as I rightly said we teach them the importance and the role of technology. But because of the unavailability of the needed technologies what we do is to tell them how to make use of the technologies rather than capitalising on it.

Researcher: What educational technology subjects are your students required to take?

Participant: mmmmm off course they are required to take basic technology, introduction to computer science those subjects will enable them to know more about computer and technology.

Researcher: What other technology requirements in terms of technology exist for your learners your school?

Participant: Like we need computer lab that will enable the learners to learn more about technology and computer of which we don't have such in our school here. We need such available, so that the learners will acquaint themselves with computer.

Researcher: What technologies have you used and how do you facilitate technology integration in your teaching and learning?

Participant: The technologies that I have used are calculator, handset.

Researcher: How do you see technology fitting into T&L in secondary education in Nigeria?

Participant: mmmmm technology would have fitted well in Nigeria secondary education more than it is now, if all the technologies were made available in the schools. Unfortunately, our governments are not doing anything reasonable thing about it, to provide computers to secondary schools, so that it would be available to the students and teachers. So that they will integrate into their teaching and learning.

Researcher: How expose do you think BE students are in terms of technology outside their required subjects?

Participant: mmmm Because of the unavailability of the technology equipment in our school I wouldn't say that they are that exposed to technology, but I wish and pray that the government will come in and make provision of these garget so that the students will much exposed to the use of technology. And know the importance of it.

Researcher: So base on what you have said now, it means that learners in your school will find extremely difficult to make use of technology in a different context

Participant: Yes, unless few those who owns handset and make use of it, they are those has something to do with technology.

Researcher: Where can your learners go if they have question/s about technology or technology resources?

Participant: We don't such resources available in our school, the only place they can go now is at any business centre, or use their phone to browse on the internet for answer on their questions.

Researcher: Do any of your assignment include technology as requirement?

Participant: The only assignment I have given is the one that required them to use their cell phone to search for information on the internet.

Researcher: What technology competence do you think they will graduate with from secondary school?

Researcher: The only technological skill I can vividly say that the students from this school will graduate with id that they know how to use calculator and cell phone to search for information using on internet.

Researcher: How are your fellow teachers using technology in their teaching?

Researcher: mmmmmm No, No I haven't seen any of my colleague using technology in their teaching

Researcher: What difficulty/ies have you encountered using technology in your teaching?

Researcher: The difficulties includes unavailability of necessary technology equipment, computers, computers lab, Wi-Fi, professionals to tech etc. We find it difficult to get the students to learning using technology.

Researcher: If you have challenges using technology where do you go for assistance?

Researcher: Definitely, if I have such challenges the best place to go is to the government.

Advice: The government should make technology available to all the secondary school, the government should ensure that the teachers they employ are technologically sound. The students must strive to acquire necessary computer skills.

Interview 09/10 face-to-face

Researcher: How would you define technology integration in T&L?

Participant: By definition, technology integration simply means bringing in technology into the teaching profession.

Researcher: Clarify your understanding of different kinds of technology?

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Participant: hmmm am sorry, I don't know much about them

Researcher: How would you define the role of technology in T&L?

Participant: From my own perspective, technology play a very good role in T&L, through technology one can despatch or impact learning, the use of technology in teaching and learning makes one to know the unknown, the use of technology help us to know the known of the time past.

Researcher: Do you think that technology should be use in T&L daily?

Participant: emmm I think so because most subjects that we teach requires use of technology, like use of technology

Researcher: How do you prepare your learners to integrate technology in their daily activities?

Participant: well going by what you asked, if we have these facilities around after teaching activities you can direct the learners to go and search out such information. When that is done it will give the child ample of opportunity to know what computer is all about and where he/she can scroll down to get the needed information.

Researcher: Are there any technological subjects that your students are required to take?

Participant: Yaa, in recent time there is a new syllabus that encompasses all areas of knowledge (Basic technology).

Researcher: What technologies have you used in your teaching and how do you integrate technology in your teaching?

Participant: I have not used technology in my teaching before

Researcher: Why?

Participant: emmmm because of no availability of both skill and technological equipment

Researcher: How do you see technology fitting into Nigerian secondary education?

Participant: For technology to excel, and for technology to come up properly in the Nigerian schools and society. I believe that the government should make provision for that and also individuals that are well to do can also make provisions for that. Also, some private schools that their owners are wealthy can also make provision for that and make that the students are

acquitted with technological skills. If the government can make provisions of the necessary technological equipment, and as well provide well trained professional who can use them to impact knowledge to people, I think everybody will be equal to the task in that regards.

Researcher: How expose are you learners in term of technology use?

Participant: From all indications the don't have much exposure, this is because majority of them dwell in rural areas, unless those that live in the city they are exposed to computer homes and all that. The parents of the students here do not it necessary to send their children to computer school etc. Many do not see it as important do acquire computer skills, such people forgot that we are leaning in a computer age were technology is the order of the day.

Researcher: Where can your learners go if they require technological assistance?

Participant: Yes, the usually go to business centres for assistance. This is because we don't have any place in our school for such assistance.

Researcher: Do you give your learners assignment that includes technology?

Participant: No, I don't and have not

Researcher: What technology competency do you think they will with graduate from your school?

Participant: I doubt it, this is because everything they learn here is only theoretical, and they lack that practical aspect of technological knowledge.

Researcher: How do you see your fellow teachers using technology in their teaching?

Participant: There is none, because the highest computer/ technology that we have is this our handsets.

Researcher: What do you think is the challenge facing technology integration in your school?

Participant: The challenge is that the governments are not doing anything to assist schools in realising the dream of integrating technology in schools. The government has come in full, and employ people who can impact technological knowledge/skills to both the teachers and students. Any form of knowledge impacted or acquired can help one survive in life. Vandalism/Stealing of computer lap is another challenge facing technology integration in secondary school.

Interview 8 Face-to-face

Researcher: How would you define technology integration in T&L?

Participant: It is the application of technology equipment in teaching and learning

Researcher: Clarify your understanding of kinds of technology in teaching and learning?

Participant: We have the hard ware and software. The hard ware is the physical part of computer system

Researcher: How would you define the role of technology in T&L?

Participant: The role of technology is very important in T&L, for example students learn more when the see what you are teaching them.

Researcher: Do you think that technology should use in T&L daily?

Participant: Yes, technology should be use daily in teaching and learning. But the only challenge is that we are developing, and most the technological equipment needed for effective T&L activities are not available in our schools. Technology helps to fasten your teaching, technology enable both the teacher and students to source for information concerning their subjects.

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Interview 6 face-to-face

Researcher: How do you define technology integration?

Participant: It is the integration or use of computer systems in the teaching and learning activities

Researcher: How would you define the role of technology in teaching and learning?

Participant: Technology integration in teaching and learning facilitates learning, it saves time. It takes knowledge across so easily and it provides the medium of visual aid while students are learning. The use of technology in teaching and learning helps to consolidate knowledge during learning.

Researcher: You made mention that technology passes knowledge across, can elaborate on that point?

Participant: What I meant by that is, whatever you want to teach or learning is already in the internet, you can have it at any time and from anywhere in the world.

Researcher: How do you prepare your learners to use technology in the future?

Participant: Although I might not know how to operate computer so well, but I can't take my learners to computer lab, and invite some who knows very to address them on the importance of technology.

Researcher: Are there any technological subject that your learners are required to take?

Participant: Yes, computer science as a subject is compulsory for all the learners in this school. The aim for making it compulsory is ensure that all the learners becomes computer literates.

Researcher: Are there any other requirement for your learners in terms of technology

Participants: Yes we have a computer lab for the students to practice, the lab was donated to the school by Oceanic bank plc.

Researcher: How do you see technology fitting into Nigerian secondary school?

Participant: Already the school system or school curriculum has embodied computer studies, and some teachers are going in for computer learning. For example, myself I have finalised arrangement to go for computer training during long vacation. So, since technology facilitates learning in the present generation, so it's a must re have computer skills.

Researcher: What challenges do you encounter when using technologies to teach?

Participant: I will say that electricity is one of the major challenges in the use of technology to teach. Lack of regular power supply, is a very big issue in this part of the world we leave in, we see don't have electricity power some of the facilities we have. Although, we sometimes use generator to source for electric power, but it doesn't stay for long because it capital intensive. Moreover, it requires additional cost to use generating sets daily. Secondly, another challenge facing the proper integration of technologies in our classroom is the lack of sufficient technological facilities in our schools. For instance, in our computer lab, the number of computer sets in the is 1-13 students. One computer set to 13 learners. In such situation, the learners wont concentrate because its not conducive and convenient for the learners. Therefore, something needs to be done.

Advice: The government should provide the schools with technology facilitates as well as personnel, power supply, finance, provide incentive to the teachers so that more teachers will be interested in the training.

Interview 4

Researcher: How would you define technology integration in T&l?

Participant? To my little knowledge of technology because am not an expert in that field I think technology integration is the act of try to juxtapose modern technology in Business Education. The integration of technology intends to enhance the teaching of BE.

Researcher: What do you think is the role of technology in the teaching of BE?

Participant: Just as in other areas, technology plays an immense role presently. In the first instance, technology practicalize the act of teaching as well as learning. It also fascinates the learner because it requires practical application. This is so because learners also like to practice what they are taught. Technology also facilitates the process of teaching and learning, it makes teaching interesting.

Researcher: Do you think that technology should be used daily in T&L?

Participant: Off course yes, in developed countries of the world technology in education is not side-lined therefore as quick as possible it has integrated fully in our own education system.

Researcher: How are you preparing your learners to technology in future?

Participant: The preparation of these learners are dual in the sense that we your old teaching system which theoretical as well as the extent we are acquainted with modern technology as much as possible apply the principle and not the practice. So that's the situation we find ourselves.

Researcher: Are there any technological subject the learners are required to take?

Participant: Yes, the learners are required to take computer science as a subject

Researcher: What technologies have used in your teaching of BE?

Participant: Sincerely I don't use any form or kind of technology to teach. But that's what I long for, but soon I will try and go for training.

Researcher: How do you see technology fitting it T&L in Nigerian secondary schools.

Participant: in fact in all aspects of learning modern technology in highly relevant and cannot be lineated and its advisable that it should be applied.

Researcher: Where do your learners go if they need assistance or question about technology?

Participant: We have a computer lab and staff who usually attend to computer and computer related queries.

Researcher: Do you give your learners assignment that includes technologies?

Participant: Yes, at times I do give them take home assignment, and I do ask them to browse for information. But not all of the students usually submit, the privileged once will go to cybercafé and complete their assignment.

Researcher: What challenges do you encounter using technologies in your teaching?

Participant: Presently, the integration of technology in teaching and learning has its own limitations. Firstly, there isn't sufficient technology gargets, teachers are not trained to use such facilities in their teaching, as well of learners. On the side of the there has not be any programme be it government or NGOs to give teachers proficiency in the area of technology accept for individual effort. Also, money is another challenge, to procure these garget requires money, and we understand the present economic situation we find ourselves. So, it not easy for any teacher or even school to procure them on his own.

Advice: the government should try and see that technology is properly integrated in the T&L, and also private schools should as well follow suit and train their teacher and students in the use of technology. As it is any vocation study that does not include technology is as well obsolete and cannot help the society in due course. Therefore, I encourage parents, government, individuals to by technological facilities for their children

Interview 3 face-to-face

Researcher: What is your definition of technology integration in teaching and learning?

Participant: What I understand by technology integration is the use of technical gargets to make students to know what the modern time is all about in teaching. This is so because the world has gone technical and as result of that we are now trying to bring our lesson in line with

that technological advancement so that our students will be able to access internet and get more facts about what we are teaching them orally.

Researcher: Clarify your understanding of different kinds of technology in teaching and learning:

Participant: By different kinds of technology in T&L we are talking about the internet, computers, we make use of these facilities to teach our learners.

Researcher: What do you think is the role of technology in T&L?

Participant: The role of technology in the teaching and learning is that, technology facilitates and makes teaching easier for students to access that which we are given them from anywhere and at any time.

Researcher: Do you think that technology should be used daily in T&L?

Participant: Yes, because the more we use it the more we get acquainted with the twinges of the time and it make the students to reason faster.

Researcher: How do you prepare your learners to integrate technology in their future activities?

Participant: Yes, in as much as we are deficient in that aspect any time. For instance, I do go to classes with the little once, the palmtop, iPad, tablets the once I have even without waiting for the school to do something.

Researcher: Are there any technological subject your learners are require to take?

Participant: They are required to Basic technology, data processing and computer studies.

Researcher: Do you give them assignment that include/require technologies?

Participant: Yes, I do give them

Researcher: What technologies have you used and how do you facilitates technology in your teaching?

Participant: I have used computers, internet because they are the technologies that am comfortable with, I use them to search for information and print to teach my students.

Researcher: Do you see technology fitting into Nigerian secondary education?

Participant: This is just like two sides of a coin, for instance if you go to private schools, private schools have the upper hand in terms of technology integration. The government are doing nothing when it comes to technology in teaching and learning. Also, when such technology facilities are brought to school, then vandalization of school properties become rampant, and as well as other social vices usually set in to cripple the system. Also, power supply, personnel

Researcher: How expose do you think your students are in terms of technology use outside their school environment?

Participant: What happened is a little, and this is because of peer influence

Researcher: Where do you students go if they have question on technology?

Participant: Sometimes they ask the teachers and more often the go to Cyber café

Researcher: What competency do the graduate

Participant: I will give them average?

Researcher: What difficulties do you encounter using technology in your teaching?

Participant: The level of students understanding differs, students are fast learners awhile some students find it difficult to acquaint with the technology

Researcher: Where do you go if you need technological assistance?

Participant: I do go cyber cafe for assistance

Advice: The government should take as a point of duty to provide security to the schools so that school properties will be well guarded. Finance is also important, the schools need money for the running cost, the teachers should be sent on training from time to time to be equipped with the present trained because things change, we are in a dynamic world. So the dynamism required that teachers should be sent on training to get more knowledge. Also, the teachers should exercise little patients with the students, this is important because students IQ are not the same.

Interview 2 face to face

Researcher: How would you define technology integration in T&L?

Participant: It means using technology to enhance T&L

Clarify your understanding of different kinds of technology?

I know about the laptop and palmtops. They are used to enhance learning, the are also used to widen our educational holism.

How would you define the role of technology in teaching and learning?

The role of technology in education is simple and straightforward, it make teaching and easier for both the teacher and the student. Technology integration enhances learning Do you think that technology should be used daily in teaching and learning?

Technology in teaching and learning keeps both teachers and learners updated on the current issues on their learning areas.

How do you prepare your learners to use technology in their future activities?

I use my laptop to teach, I use my phone to search for materials to prepare my lesson notes.

Researcher: How do you see technology fitting into teaching and learning in Nigerian secondary schools?

Participants: Technology has done a lot, although there is the good and bad sides of technology. The use of technology has really done a lot in T&L.

But the bad side of technology integration is that it exposes our students to pornographic materials, internet fraud. Also, another good side of it is that it make learning easier, students learn faster with technology.

Researcher: Where do your learner go if they have question/information concerning technology?

Participant: The usually come to us the teachers, or they to the libraries. But in our school here we do have such provision.

Researcher: How are teachers in your school integrating technology in their teaching?

Participant: Virtually, all our teachers make use of their phones, because that is the only available technology that we have here in this school. Although, some of us we have our personal laptop but no internet for browsing.

Researcher: What challenge/s do you encounter while integrating technology in teaching?

Participant: The greatest challenge is electric power supply, another challenges is that our people here both the teachers and students are still yet not adapted to the use of technology in the teaching and learning. Also, technology and technological gargets are changing so fast, making it difficult for one to adapt to it.

Researcher: Where do you go if challenges have or if you need information about technology?

Participant: I do go to business centres (Cyber Café), because in this school there are no place one can go for such information.

Advice: I think government should try and equip schools with computer laboratories, and making it functional. This will enable both the teachers and leaners have access to technology knowledge and skills.

Interview 1 face-to-face

Researcher: How would you define technology integration in teaching and learning?

Participant: It is the use of technology or technological aid in the teaching of BE

Researcher: What do you think is the role of technology?

Participant: Technology enhances teaching and learning of BE, it makes teaching and learning of BE easier

Researcher: How do you prepare your learning to integrate technology in their future activities?

Participant: Base on the issue that we don't most of the technology facilities here in our school, I personally I always try as much as possible to expose the learners the level of technology available to us. And I know that they are conversant with the technological facilities that we have here.

Researcher: What Technology subject available for your students?

Participant: We have computer education/studies, and its compulsory for the learners.

Researcher: How do you see technology fitting into secondary education in Nigeria?

Participant: mmmm although, the use of technology is not that popular in secondary school in Nigeria, and this is due to the unavailability of technology facilities and personnel in schools. However, we the teachers are try the best we can to incorporate and introduce technology to our students.

Researcher: How expose do you think that your learners are in terms of using technology outside school environment?

Participant: Yes, I think they are but I can say exactly their level of exposure. However, I do see some of them using tablets band cell phone, this show that they use technology outside the school environment and they are exposed to that effect.

Researcher: Where can your students go if they have question about technology?

Participant: Yaa, they usually go to our computer laboratory for such question/s

Researcher: How do teachers in your school integrate technology in their teaching?

Participant: Yaa, I have seen other teachers use technologies in their teaching. For instance, Biology and Geography teachers do use technology.

Researcher: What difficulties do you encounter using technology in your teaching?

Participant: The students find it hard coping with technology, I think this is because it's a new method of teaching.

Researcher: Where do you if you need assistant on technology?

Participant: I usually go to our computer lab

Advice: The government should try to provide the schools with more technology facilities and personnel. This will enhance the teaching and learning of BE in secondary schools.

APPENDIX H Focus Group Discussion Schedule

Focus group discussions

Key research question 3

- **What factors motivate the teachers in use of technology in the teaching of Business Education in secondary schools?**

1) What motivates you to use or not to use technology in your teaching?

2) What competencies do you have in technology?

3) What uses of technology do you find relevant and meaningful?

4) Are there any uses of technology you find valuable that you don't think you'll be able to use? Why?

5) What support do you receive in terms of technology and pedagogical use of ICT?

a) How has your school supported you in terms of technology integration?

b) How has the school supported you with technology?

6) What are some of the most creative approaches you've seen in terms of teaching learners to use technology in their future classrooms?

a) What is the most successful way to teach learners how to integrate technology?

APPENDIX I Focus Group Discussions Transcript

A. Researcher (17) : Focus group

Question 1: what factors motivate you to use or not use technology in your teaching (anyone with an idea can answer).

Participant:

1st responder: One of the motivation is that it makes learning easy and the research for teaching materials or instructional materials can be gotten very easily.
 Then students seem to learn faster or cope quicker when technology is used and also it is quite interesting.

2nd responder: I agree with what the first speaker said, because this days we found that the old method of teaching does not give you what you want in the classroom and based on the integration of technology in teaching and learning, students now fancy what they see and they learn faster with what they see than those old method of teaching, for instance in mathematics when you try to solve a quadratic equation like $x^2 + x = 0$. But when you use a computer and project it on the projector they will have interest to learn more than when you use the traditional method of teaching. So the integration of technology in teaching and learning now makes it easy and interesting to the learners as well as teachers and so that is what motivates me to use technology in teaching and learning.

3rd responder: From my own perception, using technology makes teaching and learning to be alive and also it is used to make the content of teaching and learning solid, and as a teacher you only advise your learners on what the need to do. This method of using technology to teach is far more better than traditional system were learners will be sitting down and look with full participation.   Because the use of technology helps the students to learn faster and they appreciate it because it facilitates teaching and learning. For instance a
teacher giving a lecture on law making in the government, the picture or video clip which is displayed for the students view will enable the students to see how the lawmakers are enacting the laws, as we as the process involved. So the students will find it easy to understand and they will appreciate it the more. Hence, the use of technology is very important in teaching and learning. But the issue is that here in our community schools the government does not support the use of technology, there is no provision of technological facilities that will facilitate teaching and learning, so in most cases we lack the required facility in terms of technology. Even some private schools also cannot afford them.

2nd responder: in addition using technology saves time, for instance I can prepare my lesson note and forward to my students via email, who will probably access the note, and prepare very well before coming to the classroom and this would enable both the teacher and the students to have meaningful engagement and at the same make the learning process fast and interesting.

3rd responder: Why I don't support full technology classroom, although, I agree with what others have said. But I have to differ a bit, there is a lot of cases of disruption of teaching and learning that goes with the use of technology. For instance, we have had experience of students doing different things with their cell phones while teaching was going in the classroom, electricity interruptions, break-down of technological facilities while in-use in the classrooms, etc.

1st responder: Also using technology is more of practical and less talking. And in learning, practice is emphasized more to enhance students learning.

Question 2: what technological competences or skills do you have?

1st responder: actually I know how to use a computer to an extent. The thing is even a calculator involves technology which I also use. But then I can draw with the computer, I also use the power point and Microsoft excel. But the issue is that I have not incorporated these skills in teaching, since we do not have all the facilities in our school here.
What I have discovered since using teaching to teach is that it improve my style of teaching and my students enjoy the activeness of my classroom, technology make teaching to be more active. So I use computer to also teach my students.

2nd responder: I don't have any specific skill on technology. But if the school or the government can assist us because there many other teachers like me that do not have the basic skills, if they can sponsor the programme I will appreciate it. Personally, I can't afford to pay for such programme

3rd responder: I myself have a diploma in computer appreciation, desktop and publishing and also computer maintenance. And this days even the primary school pupils operate the mobile phone. So talking about competence, most of these students are competent in the use of technological devices including the calculators, phones and laptops. So I can say we have the skill in the use of projectors and scanners, but due to non-availability of this facilities and inability to afford them, we do not engage much in their usage and I cannot claim that I integrate them perfectly into teaching

4th responder: I am competent in the available technology within my reach such as digital cameras and videos, mobile phones, and calculators. But then in computer technology, I am competent in Microsoft word as most of our lessons are prepared with it, we also use power point to project the work, although right now we do not have access to projector in our school, but I can operate it if one is made available, as my level of education has made it possible for mi to easily operate this technologies without much difficulty, but the

problem is their availability. We have computers which we make use of for Corel draws and

Microsoft excel, which we use for teaching computer studies and areas relating to computer education mainly. I can also go into networking, although the areas to use it may not be available.

Question 3: what uses of technology do you find relevant and meaningful, because some people argue that the integration of technology in teaching is not helping the learners, as they understand and observe that students chat with friends on Facebook and other social Medias while classes are ongoing. So do you think that the application and integration of all these technology are meaningful in the classroom?

1ˢᵗ responder: anyone who has used these technology will discover that students pick interest while using it when you apply it. So the use of technology is very meaningful and useful if it can be applied 100% in the classroom. *Another relevance is that when the technology is accessible, it can enhance fast preparation of lesson notes and plans. If you access the internet you can find materials or notes which you can easily download, read through and edit, and combined the to what you already have then take to the classroom and project. This has improved the way I teach in class, and my students result has improved significantly.*

And if this technology are introduced from the primary level, by the time they get to the secondary, students should have been used to it, they will become more creative, active and not wholly dependent on the teacher. So that you don't start to teach as if you are teaching the beginner, this is when it becomes difficult because there are areas they may not understand and you need to start telling them how it works. But if they had started to use it from the primary level, they would have been used to it when they get to secondary. And when they are used constantly it becomes very easy.

Researcher: so you are all saying that technology makes teaching and learning flexible.

Participants: exactly, yes.

2ⁿᵈ responder: I will say that making use of technology in the classrooms allows the students the freedom to discover solutions to problems both as an individual or in groups and that is what teaching is all about. As teachers we try always to make sure that students are engaged with our subject the level students could imagine. We want them to be active learners, learners who have a thirst for discovery and knowledge. If the government will try to furnish schools with technology facilities, and train the teachers to use the technologies to teach, then believe me that we will be placing the world in the hands of every student inside the confines of our classrooms

Question 4: are there any uses of technology which you find valuable that you don't think you will be able to use and why.

1st responder: yes there are, like we mentioned earlier the use of projector for teaching, is not like we cannot use or operate it, but the issue is that they are not available. Also, like the computers we mentioned earlier, we can use them, but we don't have them here in our school. The few technology facilities that the school has are been locked up in the principal's office that is the issue. We don't know if the facilities are still available because only him alone knows. Because if you have an experience in something and you don't have it readily available, it becomes a problem to both the teachers and the learners.

2nd responder: in the areas of networking when you want to apply experiences, share knowledge which of course is part of what we are doing, is very valuable. It provides freedom to students to post whatever they want and comment upon or share each other's material. They can openly write on topics that intrigue them and give vent to their ideas without having to worry about grading or grammatical errors. but we may not be able to share those knowledge through the networking because we need to be acquainted with how it works, for now we have not used it and we don't know how to do the networking here and it is very very important, even while at home your students can communicate with you by asking you some of questions on the study or work given to them. But we can't use it, we don't know how to use it and we don't have it, so this are some of the technologies that are very relevant, but we cannot access them.

3rd responder: even the ones that are available we rarely get power supply to use such facilities and that is another major problem we face.

Researcher:

Question 5: having said all this what support do you receive in terms of technology and pedagogical use of ICT.

1st responder: yes to an extent we receive supports from organization, for instance in my school, we received desktops and computer installations from Diamond bank Nigeria PLC.

The problem is most times they seem to be left redundant due to the lack of power supply and we cannot continuously run generator to operate them as it is not economical given the low capital base of the school.

Then regarding the government, occasionally they supply some of these gadgets, but they often seem to be incomplete, e.g. they provide monitor without CPUs or keyboards. Also the lack of a computer laboratory makes it difficult to manage the system.

Also there is less support in terms of pedagogical uses and encouragement. Even though emphasis are made and people are aware of the use of pedagogical application of technology in learning, but there is no follow up and implementation.

Researcher: Ok. So how has your school supported you in terms of integrating this technology? Because you made mention of receiving support from organization, but on the side of your school management, what support have you received.

Participants: like I said computer system and tables were provided by Diamond bank Nigeria
PLC with tables and they were properly set up but no adequate power supply. So the school embarked on purchasing a generator set so that the systems can be utilized once in a while. And this is a form of encouragement, and also there is an arrangement where other teachers who are professional in computer technology are hired and payed due to the large population of students. A teacher or two will not be able to take care of all the students, so the school is trying to encourage the course.

Researcher: have there been any form of arrangement to organize a seminar to train all the teachers since we leave in a world where technology is now the other of the day and the learners that we teach are assumed to be digital natives as they are been born into the era of technology while there teachers are digital migrants. So how do they marry the two, since the teachers do not know technology and some of the students do not also?

Participants: I think when you talk about the teachers now there are two categories, the younger ones are very much aware of this technology and they can use it, so I guess the major group that belongs to digital migrants are the aged teachers who are almost retiring or those retired but still willing to teach. You see one thing about this technology is that they were not introduced to it when they started and it may be a bit difficult. So to answer your question, there has not been any arrangement for seminars because the majority of the teachers are the young generation which are aware of this technology, and a less amount of the teachers are the aged teachers who have no real interest in it because they feel they would retire from service very soon.

2nd responder: on the issue of seminar or training of teachers, I can recall in 2014 or 2013, the Imo state government organized seminars for all the primary and secondary school teachers and I was one of the trainers from Data Tech technology Nigeria PLC that trained the teachers at some local government areas. But you know practice makes perfect, because some of this technologies without constant use you might forget the ones you learnt. So since 2013 or 2014, I don't think there has been any other training. I agree with you though on the issue of digital migrants and natives, as it stands now those digital migrants are gradually getting of the system and in our school what we do have are mainly the young generation teachers and digital natives which are equally computer literate.

Researcher: what are some of the most creative approaches you have seen in terms of teaching your learners to use technology outside their subject area in their day to day activities or in the future. How do you teach them to use technology?

Participants: in the use of computers they are thought how to access the internet because it is believed that there are lot of information on the internet. So wherever the teachers stops, with the skill they have they can easily browse the internet and obtain more information both now and in the future, they can as well expand their scope of learning beyond what they have been thought. Also in terms of networking, the learners engage in group chats

where they also communicate to each other with their phones as regards some subject matters.

2nd responder: most of the assignments that are given to the learners they browse the internet for information regarding it, as well as the term papers when given to them, they asked to search the internet and present a typed copy of their findings, so you can see that they are improving in their typing skills as well as searching for materials on the internet. So it makes the learners creative and active, preparing to take responsibility of their learning

3rd responder: I just want to add that the students are subjected to the practical aspects of computer, I use the word subject because you want them to acquire the desired skill. Just like my colleague mentioned we give them assignment and instruct them to typeset and not handwritten, so that further enhance their Microsoft word processing skills.

Researcher: **what is the most successful way to teach learners how to integrate technology?**

Participants: my answer may differ the next moment because there are lots of ways and we may not be able to describe one as the most successful, so I think basically the best way to teach is by being practical about it. That is by exposing the students and teachers to modern technologies, and allow them to operate and make use of the technologies by themselves. So, I think this is one of the most successful ways of teaching with technology, allowing the learners the opportunity to express themselves on classroom discourses.

Before now, the concept of teaching was based on theory, as a teacher all you have to do was explained things to the learners verbally. But this time, technology have changed the old method of talking and talking. Technology has made teaching very much interesting and empowering, in the since that students now take charge of their learning pace, which is better than any style of teaching, as they are sometimes given task to surf the internet for more information, using their phones as well hence creating groups for their ease of communication as regards their academic activities.

2nd responder: like my colleague mentioned we give them practical task to do on the computer, such that teacher instructs them to boot the computer and perform a given task without you the instructor assisting them much. By so doing they get use to operating the computer themselves.

Conclusion, researcher: I think the summary of the discussion is that the most successful way to teach learners how to integrate technology is to put together theory and practical.

Thank you for the opportunity.

B. Researcher (16) : Focus group

   Researcher: thank you teachers for your time to participate in this focus group discussion, please feel free to express your opinion.

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Question 1: What motivates you to use or not use technology in your teaching. Why do you use technology, and if you do not use it why.

1st responder: we do not have enough computers in our school, the few available are kept in a secluded place and also due to lack of power supply we do not make use of them. The technology is available but teachers do not make use of them.

Researcher: so you mean there are technologies but teachers do not make use of them, why?

1st responder: the school management said it is not fully installed in order to make it a working system, for instance the power supply and accessories are not in place hence it cannot be used.

2nd responder: what I have to say is that most of us the teachers are not trained, hence we cannot use it.

Researcher: so, you mean to say some teachers are not trained and as a result, they lack necessary technological skills to operate the computers.

3rd responder: Yes, myself, I have not come across any computer before, talk less of using it.

Researcher: ok, so it is a case of some teachers not having skills to operate the computer and some have not seen it before.

4th responder: what I have to add to what has been said is that I have experience in the use of computer, but as you can see we are in a rural area with insufficient power supply, so the computers we have, we cannot make use of them efficiently due to poor electricity condition, so I like to suggest that the government assist in making power supply steady and also equip the school with enough computers, I assure you it will go a long way in helping the students and also make things easier for the teachers.

5th responder: I may not say vividly what companies that I have in technology or technology use because I have not received any form of training on that area of knowledge. However, I am willing to undergo the training if the government can offer to sponsor the programme. An individual teacher cannot afford to pay for the programme because of the its financial intensity.

Researcher: so to elaborate on your point, you are saying that computer is very important in teaching and learning, but the problem is the availability. Also you mentioned that you have experience in the use of computer, so please can you tell us about the competency and skills you have in terms of technology.

4th responder:

Researcher: so based on your responses, do you think technology is relevant in teaching and learning?

All responders: yes it is very relevant.

Researcher: ok, please can you tell us about that, why you think it is relevant.

1st responder: it will make teaching very easy and also learning will be made easy for the students and also make them more interested when the get to view things as it is been thought using a computer. Some times when you teach them ordinarily they do not get to put much interest.

Researcher: so you are saying that with the help of computer, teaching and learning can be made interesting and easy for both the teachers and the learners.
So are there any uses of technology that you find valuable, that you think you will not be able to use.

1st responder: like we said earlier we have some computers that are locked up in the principal's office, which we do not have access to.

Researcher: talking about you having some, since you assumed teaching responsibility in this school have you received any support from any organization, the government or the community in terms of technology?

All responders: yes

Researcher: ok, can you tell us about that?

1st responder: three months ago a philanthropist promised to install computers for the school and he did. But since that event the door to where the computers where installed has been locked.

Researcher: so in terms of your school, the principal and the management, have they provided any kind of support to the teachers as regards technology and its integration in teaching and learning.

All responders: No, we have not seen any.

1st responder: although like my colleague mentioned about the philanthropist who promised to install computers in the school, the principals encouraged them as they promised to secure the building for the installation of those computers.

Researcher: ok. Ma'am back to you , you mentioned that you have some knowledge on the use of technology, so what are some of the creative approaches you have seen in terms of teaching learners how to use or learn with computer.

Response: for me I just started teaching job and I have not applied my experience in technology to teaching yet.

Researcher: ok. Do you think that teaching learners how to use computer is a creative way of teaching.

Response: it is very possible for learners to use it, because with the little experience I have with computer, you can use computer to do so many things and it can help a lot in the aspect of creativity, even in the higher institution, the architects and builders use it to design their jobs very fast, so it is very important for all categories of individuals if it is possible to have the experience as it will definitely make life easier and things will change for good. But for me I haven't done anything with it in terms of teaching.

Researcher: So what you are trying to say is that with the integration of technology in teaching and learning can be made easier, fast and timely for both teachers and the learners.

Response: Yes

Researcher: so before we round up, can you tell us, what is the most successful way to teach learners how to integrate technology in teaching and learning to better the process and purpose of learning as well as their lives.

Response: it is to tell the government to send enough computer teachers to schools because not every teacher can teach the learners computer technology, some are already trained for it, so let the government employ enough computer teachers and install more computers in secondary schools.

Researcher: you think that government should provide support to train teachers?

1st Response: yes, like we have been promised that we will go on a computer training seminar during the holiday.

2nd Response: yes I agree with my colleague because if more teachers are trained in the use of technology, it will help the teachers to train the students and we can use it to teach all subjects, if you have a little idea on how to operate it you can use it in your field. Ike myself I use it to solve business mathematics, even when I was learning how to apply it I did not have any idea on how to use the computer.

Researcher: so you mean to say that technology can be used in every area and it will assist in so many ways.

3rd Response: yes, as my colleagues have rightly said, the more the government train teachers on how to make use of technology in the field of teaching, it will help them to teach the students too. Like I said earlier, I have no idea about computer technology, but if am given any opportunity to obtain the basic knowledge on computer, I will participate very well and be able to impact the knowledge on students, as the saying goes practice makes perfect. The more the students get involved practically, the more they are interested in learning. Because when we go to class at times they would tell us to use cardboard sheet to draw computer or to draw anything that we are about to teach, when we draw it and it to the classroom, the students tend to learn more and also concentrate on what is been shown to them, instead of teaching them only the theory aspect, that why am in support of my colleagues who suggested that the government should help, although they have brought some computers to the school, just keeping them locked up without putting them to use will not help, but if the computers are installed and the teachers trained, it will go a long way in improving our understanding on all the technologies you have made mention of and then impacting the knowledge on the students as well.

Researcher: as a teacher what advice do you have for the government, school management and fellow teachers as regards to technology integration.

1st response: I think the most important thing is not just installing and training teachers, although some teachers do need training, but there are teachers who are professionals, the most important thing is for government to employ those teachers and also install enough computers to the school for use in impacting the knowledge to learners. If you go to the private schools, teaching and learning is now been done with computers, so we also need it here in the government school, and we need the professional teachers, those that are trained in computer schools to come and teach the students. I will also like to advice the government to really provide this computers because we need it, because when you go to the university or abroad you see that everything is achieved by using computers.

2nd response: I will advise that the government should try and give all teachers the opportunity to obtain a training on computer knowledge and also make it compulsory for all, and also provide computers for all schools especially government school, so that every teacher will make use of it in their various fields.
Then my advice to teachers, because sometimes when government provides facility, some people will neglect it and go on their own, so what I mean to say is that if opportunity comes, no teacher should neglect it because the knowledge will help in every area of life.

3rd response: my advice to government is to help us out because we are really in need of this computer technology, like my colleague rightly said that not been exposed to it. So government should provide the computers and also train the teachers, as many of us cannot afford the training on our own, so we should be sponsored and equipped for the job.

I am also advising the school management and teachers to make good use of the opportunity if it comes.

Researcher: thank you so much for your time, I really appreciate it.

C. Researcher (13): Focus Group interview

Researcher: Thank you teachers for coming, thank you for the time and opportunity, this focus group discussion is just to further the previous questionnaire that you filled and returned back to me, having gone through the questionnaire so I thought it wise for us to have a focus group discussion, so that we will share our experiences about technology integration in teaching and learning.

Question 1: what motivates you or not use technology in your teaching. Do you use technology to teach, why do you use it, or if you don't use technology, why don't you use it.

1st response : your question is if we use technology or not. We use technology in teaching, in pedagogy, technology is very important because the world is getting advanced every day. The problem we have here is because this is a local environment, in as much as people appreciate technology and the teachers also appreciate technology, but the problem is this, number 1. In our local environment here the problem of power. Power contributes virtually up to 80% of what technology is all about and if we don't have power that's a problem. Yes we appreciate technology and we use technology to the extent we can, because there are limitations. Limitations in the sense that

1.   Where you will need to do some practicals, exposures and also where you need to use some clips to show the students some things, if there is no power definitely you can't do that and also the teaching and learning process will not be perfect.

2.   When you come to the issue of accessibility if you don't have access to the technology that becomes another problem, now the government themselves, yes, they do their own bit, but they are not helping matters. There is a difference between making policies and implementation, they don't put into consideration the teachers themselves that will do the implementation. They up there just make the policies without putting into consideration what and what the teachers should have. So we appreciate technology but the problem is that there are many constraints involved in it.

Researcher: any more contribution to that?

2nd response: not really what he has said is exactly what it is all about, I can say that he has said it all.

Question 2: you made mention that you do use technology sometimes to a certain extent, so what motivates you to use technology, why do you decide to integrate technology in your teaching.

1st response: the world is a global village, there is nothing we do today without technology, whenever we teach, whenever we try do the practical aspect of it, and this is a jet age, you don't expose the students today, they will get exposed to such things outside, and due to the conventional learning process, you have to get the children exposed to this things in a conventional way, so that they will have access to this things, and you will control their thoughts and the way they see this things technologically, so if they get access to these things outside it becomes a problem, then you can no longer manage where their limits should be and where it shouldn't, so we are motivated because the world is a global village. And whatever we are doing today, the world has moved from analogue to digital, everything about technology today has gone digital and this is wat motivates us to

Researcher: so what you are saying basically is that you integrate technology in your teaching to expose your learners to more information about the specific subjects they are learning.
Participant: thank you very much that is it.

Question 3: Now let's talk about competency, what competency do you have in terms of technology?

1st response: the level of competency is determined by teachers' availability and the accessibility of such technologies. Number 1. Some of the teachers in the field today that never had the opportunity to be exposed to this technology before now, so it takes a lot of training and retraining to make these teachers get acquainted with the current trend of using technology in teaching, so if that gap is not bridged it becomes a problem to use technology in teaching. Technology should be used in teaching but the problem is within the policy implementation, the teachers need to be gotten involved so that they will have access to that technology and transfer the knowledge to the learners.

Question 4: back to competency, do you think the teachers in your school can make use of power point, Microsoft excel in teaching, do they know how to sought for information on the internet?

1st response: coming to using the internet to sought for information, they have that competency, but using power point and excel, that is where the problem comes in most

of them really know how to use this things, it is just a few of the number of the teachers that can actually use them.

2nd responder: What I have to say is this, almost all the teachers are ready to integrate technology in their teaching. But the problem is we lack such skills, therefore if the government think that technology is important in education, then they should come up with a programmed fully sponsored then we teachers will definitely go for the programmed.

3rd response: I have knowledge on the use of power point and excel, but the challenge the power unavailability, because using your cell phone to do this has limits, but when there is electricity you can then make use of your laptop conveniently to teach the students what excel and power point is all about. But we are faced with the issue of poor power supply.

4th responder: I personally lack such competencies, but that don't stress me. Because if the government are kin about teachers having technology skills then they should do something about it. For me, am willing to go for the program to update my career.

Question 5: what support do you receive in terms of technology and pedagogy in the use of ICT, do you receive any support from the government or philanthropist.

1st Response: support comes from the government but is not the way it should, sometimes the non-governmental organizations do the much they can to also support but is not enough.

Researcher: can you elaborate on the kind of support.

Participant: we have a computer laboratory here, we also have a CCTV installed, but the problem we have is that for some time it has not been working and it will only require the non-governmental organization that donated this to come back fix it for us, when we complain they don't respond. They need to assist in ensuring that this things function properly. Providing these gadgets and installing them is not the problem, but a follow up on their functions and maintenance is highly recommended too.

Question 6: In terms of personnel, do you have a teacher or technician who manages those gadgets?

Participant: for now, we don't, although a staff manages it unofficially.

Researcher: ok who is in charge of it.

Participant: the disciplinary dean.

Researcher: is this person a computer literate or a specialist Participant:
he is a computer literate but not a specialist.

Question 7: what are some of the most creative approach you have seen in terms of teaching the learners how to use technology.

1st response: for instance I in the aspect of practicing it, maybe you want to expose the students to what a typical location should be, what they should act on, what the stages and the scene should be, you have to get some live clips that will expose them to what you are trying to capture, because if you do not get a correct epic setting to show to the learners, you will find it difficult to pass your message across, for them to be able to see what you are doing. But when you show them a life clip of where you have the piece, I see it as being creative.

Researcher: so we are talking about the most successful way of teaching learners how to integrate technology in their specific subject.

2nd response: the most successful way is to make them participants, you know when it has to do with teaching, it has gone from teachers centred to student centred, now the students will be guided to do it themselves and when they do, it would stick in their memory.
,
3rd response: Its very difficult to teach with computers in our school as this brings distractions. This is because in a situations where the learners have to share a computer in a group of 6, it would have been easier if we have enough computers to go round the students, that is each student to one computer, by that it would make teaching with computer very easy and interesting, and the students will have time and space to practice what they have learnt, and at the same time practice using computer maximally because practice makes perfect.

Researcher: What advice do you have for your fellow teachers and the government?

1st response: My advice is that teaching and learning have gone from analogue to digital, so the earlier we integrate technology in teaching and learning the better for everyone in education sector. If you look at external exam bodies they no longer set exams that students write with pen and paper, every external exams are done electronically. However, it is so sad that in secondary schools teachers are still teaching using traditional methods of teaching with chalk and black bord, that is the reason students when faced with online examinations or exams conducted through online they find it difficult to perform well.

2nd response: What my colleague have just said is the truth, sometime you see a learner who did absolutely well in WAEC OR NECO, but in JAMB you discover that the same student performed bellow his or standard. This might be because the JAMB exam was conduct with computer aided devices, it might be that such student was met with fret, fear of computer due to lack of necessary computer skills.

Therefore, as a matter of urgency the government should integrate technology in all the classrooms so that the students would learn how to use computer and use them maximally, because practical is the best approach to effective learning. If the students use the computer and practice it, it will go a long way helping them to access notes and other learning materials online, they can also access notes from others schools to equip themselves.

Interview 7: Focus group discussion

Researcher: What motivates you to use or not use technology in your teaching?

Response 1: Most of our teachers are interested to use technology in their teaching. But the problem is that the technology equipment like computer, Projectors, magic board, emailing systems, etc are not available in our school.

Response 2: Why we are interested to use technology is that, the few available technology facilities, facilitates teaching and learning in classrooms. However, the challenge still remain none availability of technological facilities in large numbers.

Response 3: Technology in the classroom facilitate teaching and learning, it makes teaching become very easy and flexible.

Response 4: to me technology using technology to teach will make the work of teaching less stressful for the teacher and learning becoming a fun the learner. As a teacher you will have access to vast majority of current and relevant teaching resources, and such will push you to give in your best. But the situation we find ourselves in our country is not favouring anyone in terms of using technology. The reason am saying this is the government is not supporting teachers to develop or update their skills and that's the reason students are not doing so well is the academics. There is no support from anyone be government or the community, or NGOs nothing is forthcoming. That is the problem, most teachers are willing to incorporate technology in their teaching only if they receive training for it and facilities are made available to them.

Researcher: What technological competency do you have?

Response 1: Although, I will say that am a lay man in technology and all that concerns technology. However, to make use of the little skill that I have/know are prevented due to non-availability of the necessary facilities in our school.

Response 2: hahahahah the only facilities I have is my cell phone and electronic calculator. And I can make use of them to a certain point base on what I want to use them for.

Response 3: Years back I know how to make use of MS word, Excel, coral draw, and PowerPoint. But now I can't even remember them anymore due to lack of practice and lack of availability of the facilities.

Researcher: Do you receive any kind of support in terms of technology?

Response 1: Yes, some NGOs and some individuals, do donate some of these facilities and some individuals equally do that. But not much is coming from the government, for us here in the state. It does appears that the burden is much on the government because of free education. It won't take much from the coffers of the government to install these technology in schools, but still nothing is coming forth. But I know that some NGOs do donate to some schools on their own from time to time. So, that is the problem schools are facing in term of integrating technology in teaching and learning classrooms.

Researcher: Are there any kind of programme on ground to help train teachers for technology?

Response 1: There are no such programme, the school is handicapped, and there is no source of revenue for the school to sponsor teachers on technology training skill programme. These programmes are available actually but teachers do not attend them because such programmes are financially intensive, and nobody cares to assist the teachers. The government does not sponsor because of lack of fund. The government develop these programmes and allow teachers to sponsor themselves, but most often teachers don't have the money so they don't attend. So the programme are available but there is no incentive for those attending it so the seat back. That is the problem we are having in our schools.

Response 2: Also, even if those facilities are made available, there is no electricity to power them. We teachers know very well that technology integration will make teaching more flexible, and facilitate teaching and learning. But the government does practically nothing to assist most school in the rural areas in terms of technology, but if you go to other public schools in the cities you will find out that they have all these technologies, and they are using it. The teachers teaching in the urban areas and their students are

receiving training on how to use these modern technologies but we here are being left out. The teachers attend programmes on technology use frequently, developing their skills but others are not receiving such training and are been left out.

Response 3: What I have to say is this, both the school and they government should realise that the way teaching are being delivered changes with time, and that is applicable to how students learn. I will like to see a situation whereby our schools are furnished with technologies so that teachers and students could benefit from it.

Response 4: I will say that teaching is a matter of conscience, and in as much as nothing is forthcoming, teachers should make with what they have. Yes, we don't have the modern technologies in our schools. But another problem is that the once that we have in our school nobody is making use of it including myself. Irrespective of whether they facilities are outdate or not they remain teaching resources/materials.

Researcher: Do you think that technology can fit into Nigerian secondary education system?

Response 1: Yes, it will fit in if the necessary things are done.

Researcher: What does necessary things?

Response 1 cont: Necessary things like human development in the area of technology integration are supposed to be of main concern to the government. You cannot just bring computers to school and show students computer without someone teaching them how to use it. Schools have very limited personnel in the area of technology, therefore the government and NGOs have to do something about it. They should come up with programmes and sponsor people to go for training in the line of technology so as to meet up with future demands of technology in schools.

Again there should be a constant electric power supply to power these garget, because when you talk of computers they are not working on ordinary battery the work on electric power. So, if you have computers in the school and there is no electric supply the are useless. If the sources of electric power could be regular and there are personnel available I think the future of education in Nigeria could be very very encouraging. This is because what we see in the internet, and from developed countries too if these thing are available here as they are outside our students will cope provided these facilities are available and personnel available. Our students will cope and even overtake others. As

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we hear from people that leave in overseas saying that most of the best medical doctors abroad are blacks and some of them are Nigerians, and some of our students there come with flying colours. These means that what the white people are doing or have done we in Nigeria can also do the same even better than them. Yes, we can do it here in Nigeria only if we have the facilities and incentives, because if there is no incentive the moral will be low. Student who is bright and from a poor home never receive and kind of encouragement here, but abroad such student will receive encouragement from government. So, if there is incentive, facilities and personnel, electric power supply we will do better than most countries in Europe and America. Focus group discussion

Before we do not make you of technology, but since we started adopting technology into teaching and learning, I make use of internet to browse for materials to prepare my lesson notes and to and to know how other teachers in other schools are enacting the curriculum.

I have used computers, internet because they are the technologies that am comfortable with, I use them to search for information and print to teach my students.

I have my personal laptop and handset which I use in browsing for lesson notes and other materials that one came use to support teaching and some of my students that also have their personal computers, I do assist them on how to use them to source for material related to their studies so that it will help them enhance their academic performance. I am familiar with Microsoft word and then

and use the Microsoft word which I am used to. Bringing it to business education class the only thing I can do is to give assignments to students and those who do not have computers will go to the cybercafé type it and submit to me, that way they can at least learn how to use the Microsoft word.

you know formally, we were using just normal use of textbooks, you make your lesson notes, but since we have adopted the use of current technological advanced way of making our lesson notes I don't think we do go back to using textbooks to make research, we make our research by use of internet as we browse through the internet to know the current curriculum that is being used nationwide and with that we can make our lesson notes and paste it online so that the students can access it and print.

I have my personal laptop and handset which I use in browsing for lesson notes and other materials that one came use to support his/her teaching and some of my students that also have their personal computers, I do assist them on how to use them to source for material related to their studies so that it will help them enhance their academic performance.

I think the difficulty is that some days I manage to bring my laptop to school and there will be no electricity. I guess electricity is the major problem, and most times there is no gas for the

generator as well. other challenge can be that the school does not have a projector even if I decide to teach with it. There is lack of technology resources.

Think the most difficulty I have encountered has to do with light, you know when you are talking about technology you need energy and the most common source of energy here has to do with Power Holding Company Electricity and most times we have electrical challenges because we hardly have light.

I think the most difficulty I have encountered in the issue of electricity because whenever you are talking of technology it goes with energy. Also, in this part of the world we are we have only one source or company that supply electricity, most time we don't have electricity to power the computers

The difficulties include unavailability of necessary technology equipment, computers, computers lab, Wi-Fi, professionals to tech etc. We find it difficult to get the students to learning using technology

Many challenges, because, if all the facility that I have mentioned that are lacking here in our school were available, it would have been a little challenge to us. But why we are finding more difficult is due to the situation of our country which has also affected the educational system as well, because there are things which the school needs that the government should provide which they haven't been able to provide and as a result the whole system is affected. Like I said previously we lack power supply, and there is no working generator to supplement so all this thing are the needs to be met which also possess some difficulties in regard to technological requirements.

Before we do not make you of technology, but since we started adopting technology into teaching and learning, I make use of internet to browse for materials to prepare my lesson notes and to and to know how other teachers in other schools are enacting the curriculum.

Well like I rightly said, major challenges we are facing here in our school are the unavailability of modern technological equipment, Power supply, finance, everything hovers around finance, the government are not doing enough in terms of providing finance for the technologies we need. Also, the little gargets that we have here, the students find it hard to acclimatise or get use to technological environment. It could be an influence from their family background, or upbringing. This could be because most of the student in their homes they don't use some of these things and their parents could not afford these equipment for them, when all these plays together it become insurmountable challenge.

I will say that electricity is one of the major challenges in the use of technology to teach. Lack of regular power supply, is a very big issue in this part of the world we leave in, we see don't have electricity power some of the facilities we have. Although, we sometimes use generator to source for electric power, but it doesn't stay for long because it capital intensive. Moreover, it requires additional cost to use generating sets daily. Secondly, another challenge facing the

proper integration of technologies in our classroom is the lack of sufficient technological facilities in our schools. For instance, in our computer lab, the number of computer sets in the is 1-13 students. One computer set to 13 learners. In such situation, the learners won't concentrate because it's not conducive and convenient for the learners. Therefore, something needs to be done. like I said we go to cyber cafes which are not even so close to us.

we go to cybercafés which are not even so close to us

I go to the Cyber Cafes and most times it takes a lot of money to move from here to the place

-lack support

-Theory and no practice

On the side of the school has not be any programme be it government or NGOs to give teachers proficiency in technology accept for individual effort.

the infrastructure they are developing in terms of the laboratory not been completed and the government is not interested in the project, so how do we realise that.

Sincerely I don't use any form or kind of technology to teach. But that's what I long for, but soon I will try and go for training.

The level of students understanding differs, some students are fast learners while some students find it difficult to acquaint with the technology.

The greatest challenge is electric power supply, another challenge is that our people here both the teachers and students are still yet not adapted to the use of technology in the teaching and learning. Also, technology and technological gargets are changing so fast, making it difficult for one to adapt to it.

The students find it hard coping with technology, I think this is because it's a new method of teaching

APPENDIX J Turnitin Report (Summary page)

12/4/2019   Turnitin Originality Report

Turnitin Originality Report

ICT integration in Business studies   by Clinton Stella Ezinne Anyanwu

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