

**UNIVERSITY OF GHANA**

**COLLEGE OF HUMANITIES**



**INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) INTEGRATION IN  
THE TEACHING AND LEARNING OF ACCOUNTING PROGRAMMES IN GHANA**

**BY**

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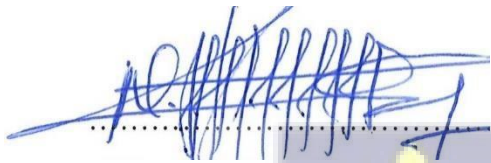
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**THIS THESIS IS SUBMITTED TO THE DEPARTMENT OF ACCOUNTING,  
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**DECEMBER, 2021**

**DECLARATION**

I Ndor Akolgo Peter (**10805202**) hereby declare that this thesis is my research and that this thesis has not been presented either in part or whole in another institution or this institution for any award. I declare that all sources and references consulted for ideas have been dully acknowledged. I, therefore, take responsibility for any error that may be part of this write-up.



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**CERTIFICATION**

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## DEDICATION

I dedicate this work to my lovely sons; Goodluck Winiyisimah Ndor and Godson Tilogba Ndor



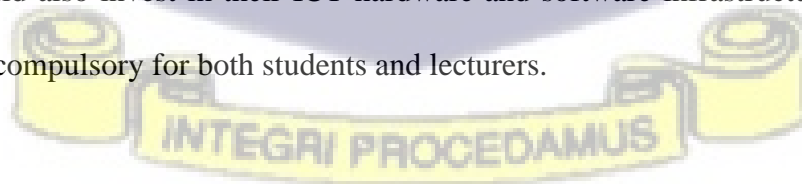
### **ACKNOWLEDGEMENT**

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## ABSTRACT

Technology is fast advancing and as such accounting educational institutions need to devise innovative techniques for teaching and learning of accounting to stay competitive. The integration of ICT with accounting, therefore, serves as one innovative means for teaching and learning accounting. This study focused on the integration of ICT in the teaching and learning of accounting programmes in Ghana. The study employed a qualitative research method which used interviews and focus group discussions as the data collection instruments. In all, ninety-four respondents; twenty-two lecturers, and seventy-two students from six universities in the country which formed the scope of this study were purposively chosen. The data were manually analysed. The study found that although ICT integration in the teaching and learning of accounting in Ghana is an effective way of promoting teaching and learning, however, its integration is not mandatory as lecturers and students integrate it at their will. The study also revealed that while some lecturers and students integrate ICT frequently in their teaching and learning activities, some do not because they are not proficient in the use of these technological tools and services. Also, the findings showed that some institutions and students cannot afford the needed technologies to facilitate technology-based teaching and learning due to inadequate financial resources. It is therefore recommended that for successful integration of ICT in the teaching and learning of accounting; it is important for software training programmes to be organised for students and lecturers. Institutions should also invest in their ICT hardware and software infrastructure and also make ICT integration compulsory for both students and lecturers.



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### LIST OF ABBREVIATIONS

University of Ghana	UG
Valley View University	VVU
University for Professional Studies	UPS
Bolgatanga Technical University	BTU
Accra Technical University	ATU
Central University College	CUC
Technological Pedagogical Content Knowledge	TPCK



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study

The continuous advancement of technology and the increasingly dynamic environment in which accountants work requires a re-orientation as well as innovative techniques for the teaching and learning of accounting (Gaviria, Arango & Valencia, 2015; Oliveira, Manuel, Barros & Arantes, 2013). Edmund, Thoery and Conole (2012) opined that there have been numerous calls from all corners of the world for educational institutions to incorporate information communication and technology into teachings and learning if they desire to stay competitive. Binqimlas (2009) reported that modern technology does not only promote an opportunity for engaging students in active learning to enable students and instructors to familiarize themselves with several technological tools within the classroom setting and even after the classroom for quality instruction. Technological tools should therefore be seen as instruments of change in how accounting is taught and learned. Bhasin (2012) argued that the integration of ICT in any educational programme is not a big problem, but the success of the integration depends heavily on how it is implemented. Annasigh (2019) in supporting the argument of Bhasin (2012) argued that students often do not get motivated in Virtual Learning Environment (VLE) or experience deep learning automatically without a good teaching approach. He, therefore, advocated for instructors to arouse creative thinking from students with well-informed and teasing questions which would promote collaborative learning and facilitate knowledge transfer. Similarly, Koehjer, Mishra, and Yahya (2007) added that for a of technology integration to be successful in an educational establishment, a coherent understanding of the technological-pedagogical –content-knowledge is

needed. Gordon (2014) argued that instructors need to adopt a flexible approach to teaching when integrating technology to fully reap the benefits associated with the integration.

Information Communication and Technology refers to a set of data, electronic, microelectronic, telecommunication, and computers which are used to make lives meaningful (Gaviria et al., 2015). The author further avers that ICT is a tool that permits the storages, retrievals, manipulations, transmissions, and receipts of data. ICT in the current study is considered as anything relating to computing technology.

McCombs and Whisther (1997) believe that the center of the learning process are students and in trying to educate them to influence the needed change in them, it is very important that the learner's characteristics are well understood to help them construct their knowledge. They insisted the newest generations of accountants are immersed in the use of technologies and therefore accounting educators must tailor their instructional design in such ways as it would enable them to conform with the current generation.

From literature, the benefits of ICT in accounting education have been testified (Selwyn, Henderson & Aston, 2017; Watty, Mckay & Ngo, 2016; Gaveria et al., 2015). The integrations of ICT in secretarial education enhances students' active involvement, offer increasing opportunities for interaction and deep learning, improves delivering of content, reduces attrition rates, and creates work-ready graduates. Another benefit is that technological tools provide sensory stimuli. The use of technological tools to teach creates a virtual reality which ultimately makes learning more joyful and useful. Karschner and Sellinger, (2003) enumerated several benefits to be extracted from ICT when it is integrated with teaching and learning which include, it offers high-quality learning materials, it meets the education need of learners, promoting parity and independence of learners, and also enhances the availability of information for students and enable

students to easily share the information which ensures effective learning among students. ICT had made information creation, collection, organizing, storage, retrieval, and dissemination simple. Universities can now generate and maintained electronic libraries which makes teaching and learning an easy task for both students and instructors.

In recognizing the actual and potential benefits of technology, countries all over the world have called for the integration of various technologies with accounting to improve accounting education. The American Accounting Association formed the Accounting Education Change Commission (AECC) which emphasised creative use of technologies in educating accounting students. In 2012, the Pathway Commission on Accounting Higher education also called for the increased integration of technologies with accounting. The government of Ghana instituted a policy framework in 2007 to increase the presence of ICT in educational institutions including accounting institutions to enhance educational activities among students and their instructors.

Notwithstanding, accounting intuitions have been criticized for being technical since it educates students in accounting and reporting without applications of skills (Awayiga, Tsamenyi & Onumah,2010). Bui and Porter's, (2010) study on accounting employees, graduates, and professors about the effectiveness and competencies of the accounting curriculum in New Zealand concluded that students are solely taught intellectual knowledge and lack core skills in information technology. The technical aspect of accounting education may be explained by the reluctant nature of accounting educators to change their ways of teaching and the accounting curriculum. Fullan (2001), explained that experienced teachers are not always prepared to change their usual style /ways of teaching since they are deep-rooted in their own beliefs and knowledge they acquired during teaching life.

Merino (2006) however, argues that technical approaches to accounting education is not sufficient and cannot serve as an adequate basis for accounting education. Prensky (2010) and Shaw (2014) critique that the traditional system of learning which use to be “telling and testing” is no longer suitable for the 21<sup>st</sup> century of students.

Bae, Prasad & Alsadoon (2016) asserted that even –though there is a remarkable development in terms of ICT integration in educational systems where students use technological tools for information sharing and learning there is still a paucity of online learning initiatives which have not been fully utilized. The big question that remained is “how is ICT integrated with the teaching and learning of accounting programmes in Ghana? There is therefore a need for a study to explore information communication technology integrations in the teachings and learnings of accounting programmes.

## **1.2 Problem Statement**

There is an upsurge in the use of ICT by educational institutions (Bhasin, 2012; Edmund et al., 2012 & Gaviria et al., 2015). A well-designed teaching and learning approach, curriculum design, and the appropriate technology have been argued to be the prerequisites to the successful integration of ICT in the teaching and learning process (Koehjer et al., 2007).

The continuous upsurge in the use of ICT depicts a need to have a comprehensive understanding of how ICT could be integrated with the teaching and learning of accounting. Research on ICT and accounting education has been approached from two directions. Firstly, most studies concentrated on the need to integrate ICT in accounting education (Pan& Seow, 2016; Wessels, 2007; Ezeami & Akpotohow, 2014; Blankley, Kerr & Wiggins, 2011). Thus employing quantitative surveys, these studies mainly conclude that the only way to prepare accounting

graduates for the digital era is to change the accounting educational curriculum in line with technological developments. Secondly, other studies (Simpson & Welbeck, 2013; Wahab, 2015) have also focused on the technological apparatuses accounting students and lecturers use to improve teaching and learnings. These studies have neglected the teaching approaches to aid the integration of ICT in accounting.

Studies have also shown that extensive research has been conducted on ICT and accounting education in the international context, as compared to developing countries (Rogers, 2016). Since studies on ICT and accounting education are largely influenced by the social economic, cultural, and political setting of the samples being studied (Rogers, 2016) the findings of those studies already undertaken cannot easily be replicated since factors influencing ICT integration into accounting education are not the same for both developed and developing nations. This underscores the need for this study to ascertain whether similar findings in the context already studied also exist in a developing country context like Ghana.

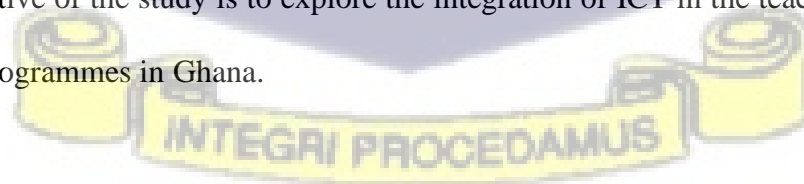
Wu, (2016) posited that few studies on information technology and accounting research use theories, and even the few studies which use theories suffer from theoretical status quo-bias. Ferguson and Seow (2011) opined that those studies on information technology adoption always adopt the use of standalone firm-level theories. However, Dincer and Dincer (2016) and Oliveira and Martins (2011) all argued that technology and accounting research is a complicated issue and therefore cannot be approached from a single theoretical lens. This study, therefore, employs the Constructivism Learning Theory and Technological, Pedagogical Content knowledge Theory from other fields to explain how ICT could be integrated into the teaching and learning of accounting and the teaching approaches needed to integrate ICT in accounting.

Most studies in ICT and Accounting education adopt the quantitative approach in collecting and analysing data( Pan & Seow, 2016; Wessels, 2007; Ezeami & Akpotohow, 2014; Blankley, Kerr & Wiggins, 2011). The current study argued that a deeper comprehension of participant's view and opinion on ICT integration in the teaching and learning of accounting cannot be achieved by the use of quantitative techniques as such methods are restrictive in explaining “how” and “why”ICT could be integrated and also imperfect in capturing the experiences of the participants. A qualitative case study is deemed most appropriate to understand the experiences of ICT integration in accounting.

Furthermore, the scanty and fragmented studies on the integration of ICT with accounting education in the Ghanaian context does not help in understanding how ICT could used to enhance the accounting education, the teaching approaches to adopt to ensure successful integration, the motivations for ICT Integration in teaching and learning of accounting as well as the challenges. The present study therefore extends and contributes to the literature on the integration of ICT in accounting in enhancing teaching and learning. The study, therefore, seeks to answer the question “how is ICT integrated with the teaching and learning of accounting programmes in Ghana?”

### **1.3 Objectives of the Study**

The main objective of the study is to explore the integration of ICT in the teaching and learning of accounting programmes in Ghana.



**The specific objectives are;**

1. To find out what motivates accounting students and lecturers to use ICT in their learning and teaching
2. To explore how ICT is integrated with the teaching and learning of accounting in tertiary institutions
3. To identify the challenges that accounting instructors and learners encounter using ICT in their learning and teaching activities
4. To examine the teaching approaches to use for integrating ICT in accounting education

**1.4 Research Questions**

1. Why is ICT integrated into the teaching and learning of accounting?
2. How is ICT integrated with the teaching and learning of accounting?
3. What are the challenges of integrating ICT in the teaching and learning of accounting?
4. What are the teaching approaches for integrating ICT in accounting?

**1.5 Scope of the Study**

The study specifically seeks to explore information communication technology integrations in the teachings and learnings of accounting programmes in Ghana. The study targeted six tertiary institutions in Ghana offering accounting programmes which consisted of two public universities, two private universities, and two technical universities.

### **1.6 Significance of the Study**

This study is of significance; to literature, policy, and practice.

For literature, this study serves as a guide to future researchers who would like to research further on information communication technology integrations in the teachings and learnings of accounting programmes not necessarily in Ghana but in other jurisdictions. The study, therefore, adds to the few existing pieces of literature on information communication technology integrations in the teachings and learnings of accounting programmes in Ghana.

Again, the finding of this study would guide policy makers in designing appropriate policies to integrate technologies in accounting programmes to equip accounting students with the needed skills to function proper in the ever-changing technological business environment.

Lastly, to practice, the results of this study would enable accounting educators to be aware of the teaching approaches to adopt to integrate ICT in accounting.

### **1.7 Limitations of the Study**

The focus of the study is Ghanaian Universities offering accounting programmes hence the findings of this study is biased and limited to only Ghana. This means that other jurisdictions outside Ghana were not studied and the results of the study therefore cannot have general applicability.

Again, the study looked at only business schools offering accounting programmes. This means that lecturers and students teaching or studying business courses but not accounting was not interviewed for their views to be sought.

One limitation of this study is that the sample size had not been stated explicitly and thus data were collected after a considerable number of interviews using the purposive sampling technique.

This means that only teachers and students with the requisite knowledge of the subject of interest were interviewed.

Another limitation has to do with the reliability of the data and the data validity. Respondents may conceal vital information due to confidentiality issues and this may compromise the accuracy of the sought data.

### **1.8 Organisation of the Study**

The organization of the study is as follows:

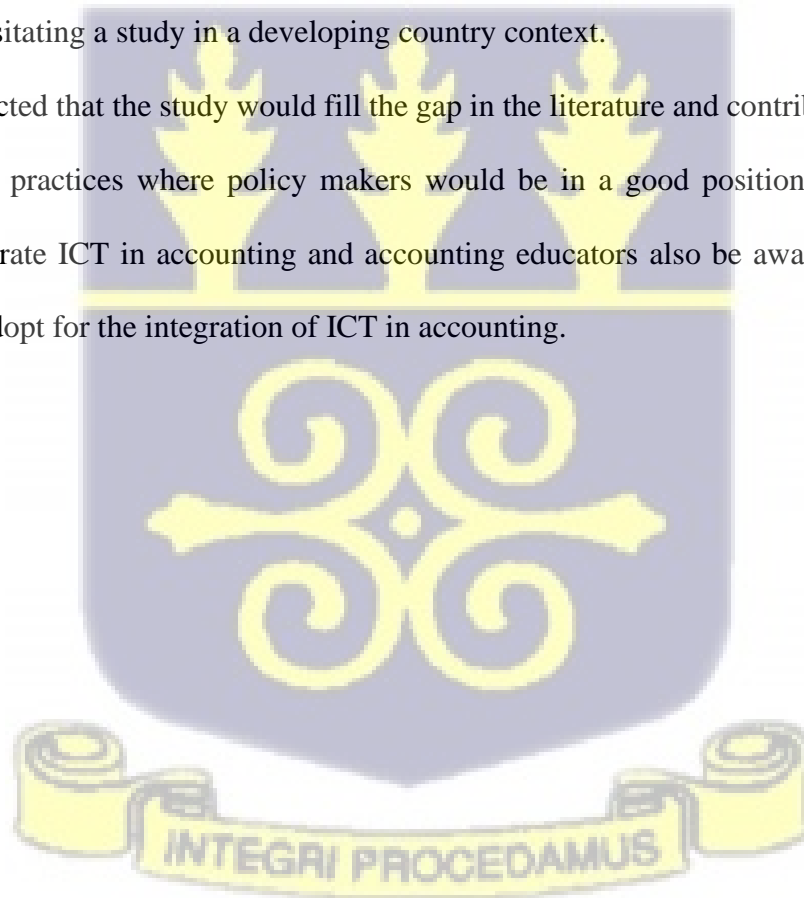
Chapter One deals with the background of the study, the statement of the problem, the research objectives, the scope, the significance of the study, and the limitations of the study.

Chapter two reviewed extent literature in line with the study objectives; In this case, a general review of teachings and learnings to gain a general conceptual understanding of teaching and learning in the universities was done. This was followed by a review of information communication technology integrations in the teachings and learnings in accounting programmes, the teaching approaches for integrating ICT in accounting, and the motivations for and the challenges when integrating ICT in the teaching and learning of accounting programmes. This chapter ends by reviewing the theories underpinning the study. In chapter three, the study discusses the methodology adopted in achieving the study objectives. It covers the research paradigm, the research design, the population of the study, sampling and sampling techniques, data sources and collection methods, the analysis approach, and finally ethical considerations. In chapter four, the outcome of the research was presented and discussed. Chapter five covers the summary, conclusions, and recommendations.

### 1.9 Summary of the Chapter

This chapter commenced with the introduction of the study (thesis) by highlighting the various contributions of ICT to teaching and learning accounting. The study stressed that although ICT integration could be beneficial to accounting education, its integration should be and need to be supported with the necessary teaching methods. Emphasis was then laid on the instructors of accounting to adopt and implement modern technological tools with the appropriate lesson planning. The chapter also indicated that although several studies about ICT and accounting education have been done in other jurisdictions, especially in the advanced countries, the same cannot be said to exist in Ghana and even technological factors are not the same across countries, therefore, necessitating a study in a developing country context.

It is highly expected that the study would fill the gap in the literature and contribute immensely to both policy and practices where policy makers would be in a good position to rightly design policies to integrate ICT in accounting and accounting educators also be aware of the teaching approaches to adopt for the integration of ICT in accounting.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

The chapter reviews the body of literature that is pertinent to the objectives of the study. In order to get a conceptual knowledge of teaching and learning in the universities, the chapter is divided into theme sections after a basic survey of the literature on the subject. The type of ICT integrated, the stages of ICT integration, the call for the integration of ICT into accounting education, the accounting softwares used in teaching and learning, the motivations for integrating ICT in the teaching and learning of accounting programmes, how ICT is integrated into the teaching and learning, the challenges of ICT integration and the teaching approaches for integrating ICT in accounting are reviewed. The chapter ends with a review of the theories underpinning the study.

#### 2.2 Teachings and Learnings in the Universities

Teaching and learning according to, Ambrose et al. (2010) is the prodeure that produces change as a result of experience, which raises the possibility of improved performance. Smita (2020) argued that the word “learning” has no specific and precise definition since learning can be put to multiple uses. However, he argued that learning is the acquisition and mastering of what is already known about something, a furtherance, and clarification of the meaning of one’s experience, or an organised intentional process of testing ideas relevant to problems. To Mayer (2019) learning is a relatively long- lasting modification of information or behaviour brought about by experience. This definition consist of three parts: the duration of the change is long-term rather than short-term, the locus of the change is the content and structure of knowledge in memory or behavior of the learner, the course of the change is the learner's experience in the environment rather than

fatigue, motivation, drugs, physical conditions or physiologic intervention. Muijus and Reynolds (2005) asserted that effective teaching is getting the approach right to get students to be independent learners.

Teachers were seen as knowledge owners who impart this knowledge they owned to students who were considered as the knowledge receivers. Teaching in the university however goes beyond the mere transmission of knowledge to the acquisition of other skills and the practical application of the knowledge acquired. In recent times, there is a general realisation that there is no such thing as knowledge “out there” independent of the knower but only knowledge that is constructed by learners themselves as they learn is the true knowledge (Jia, 2010). Teachers are therefore encouraged to use activities and opportunities to experiment to help learners to construct their knowledge since this helps learners understand the world better. Teachers, therefore, serve as facilitators in the knowledge dissemination process but not the imparters of knowledge.

### **2.2.1 Traditional Education**

Traditional teaching and learning describes a situation in which the teacher is having the sole power and controls the learning environment. The teacher in the traditional learning mode plays the role of the instructor in the form of lectures and the role of a decision-maker in the form of the curriculum content and specific outcomes. Hall (2002) describes the traditional approach as a system which is face-to-face learning. Traditional learning methods have a serious advantage for both the students and instructors. The very way in which the method is applied ensured that students are rewarded for their efforts, used class periods efficiently, and exercised clear rules to manage students' behavior. The teachers communicate the knowledge and enforced standards of behavior. Tan (2005) posited that ICT makes it simple to engage with colleagues without

difficulties in the class room and there is also less or absence of misinterpretation of information when using the traditional method.

The traditional method provides an increased level of student engagement with teachers, increases interaction among students, provides a conducive environment to learn, offers fast and stretchy developments and deliveries of content, provides immediate feedback from instructors, and helps in maintaining interpersonal relationships. Again, it provides opportunities for majors that cannot be taught online to be handled.

Despite, the advantages offered by the traditional approach, there have been some short-comings associated with it. Some of these include the need for a class room or space which may be expensive, the rigidity of its nature that it is not flexible and it also encourages rote learning. There is also the absence of simple recurrence of instructions that are taught except when such lessons are recorded.

### **2.2.2 Distance Education**

Distance learning refers to a system in which learners and instructors are set apart. Keegan (1980) used six key elements to describe distance education. His identified elements of distance education are; “Separation of teacher and learner, learners as individuals rather than groups, educators as an industrialized form, influence of an educational organisation, use of media to link teacher and learner, and two-way exchange of communication”.

Traditionally, distance teaching and learning has been explained as teaching through print or electronic communications media to persons engaging in planned learning in a place or time different from that of the instructor or instructors. Kwapong (2009) posited that distance education serves as a solution to developing countries' educational problems due to their inability to meet the

educational needs of their citizens. According to him, developing countries are still battling with the inability to put up infrastructure and acquire other educational learning materials to educate their citizens and as such should see distance education as a solution to their problems.

Technological developments all over the world had challenge educators to redefine schooling and learning and at the same time aroused interest and propelled the growth of distance education. Such rapid developments in computer-related technologies have made it possible for distance educators to have ease delivery of their lessons.

Morabito, Sack, and Bhate (2000) explained that the development of distance education took place in four generations; print instructions, broadcast systems, online instructions, and web-based instruction. The growth of distance education is a result of certain advantages it offers to its consuming public. The first advantage is accessibility. Distance education addresses the problem of physical accessibility. On -line classes which is another form of distance education helps students to avoid the problem of struggling over class room space. Students can sit in the comfort of their homes and receive an education.

Again, distance education does not require students to travel long distances to a particular school to attend or access lectures. This helps students and the government to save cost. Also, students can study live anywhere. They must not physically be on campus to achieve this.

However, distance education notwithstanding the foregoing advantages also has its disadvantages. Social isolation has been identified as a major disadvantage. Most often, students study alone. This may not give the students the needed interpersonal relationship that may be developed through the traditional classroom setting. To add, there is some hidden cost to both the students and educational instructors. The acquisition of the needed technologies to facilitate the learning process serves as a cost to both the students and educational institutions. The problem of distance education is both

internal to the students and external to the educational institutions. Valentine (2002) asserted that the problems of distance education include; the quality of the education itself, the misuse of technology, the attitude of teachers who cannot adopt to the ways of teaching required by distance education, and the attitude of students who must be committed than the students of traditional teaching.

### **2.2.3 Blended Education**

Dziuban, Hartman, and Moskal (2004) defined a blended approach as an approach that combines the effectiveness and socialization opportunities of the class room with the technologically enhanced active learning possibilities of the online environment. It is simply an approach which is an integrated instructional approach that combines the face- to -face interactions in the traditional class room setting and online activities. Blended teaching and learning advances students' performance in that it allows for careful and thought-provoking reflection that enhances personalized learning (Bryan & Volchenkova, 2016).

King (2016) argued that the blended system can be categorized into four modes: rotational, flexibility, self-blended and enriched virtual. Educational institutions are now embracing this method due to the continuous complains of students that they lack intellect of belongings when it comes to online and distance learnings averts them from the expansion of interpersonal relationships and common moods between them and their instructors.

The Blended approach, therefore, do not only a bridge between the distance learner and the instructor but also a bridge of time providing the learners the opportunities to develop the necessary interpersonal relationship as well as manage their time (Bryan & Volchenkova, 2016). Lin and

Wang (2012) added that the blended approach has the advantages of integrating the advantage of e-learning with the traditional face-to-face learning approach.

Although blended learning has become popular in higher educational institutions Kaur, (2013) argued that the blended system application in a developing country is problematic. He noted that developing countries still face challenges such as a lack of infrastructural facilities coupled with internet connection problems in most of their universities.

Again, teachers' inadequate knowledge of computer technology is a factor inhibiting the successful implementation of the blended method in higher institutions (Mahande, 2021).

Lin & Wang (2012) postulated a blended system which is diagrammatized below;

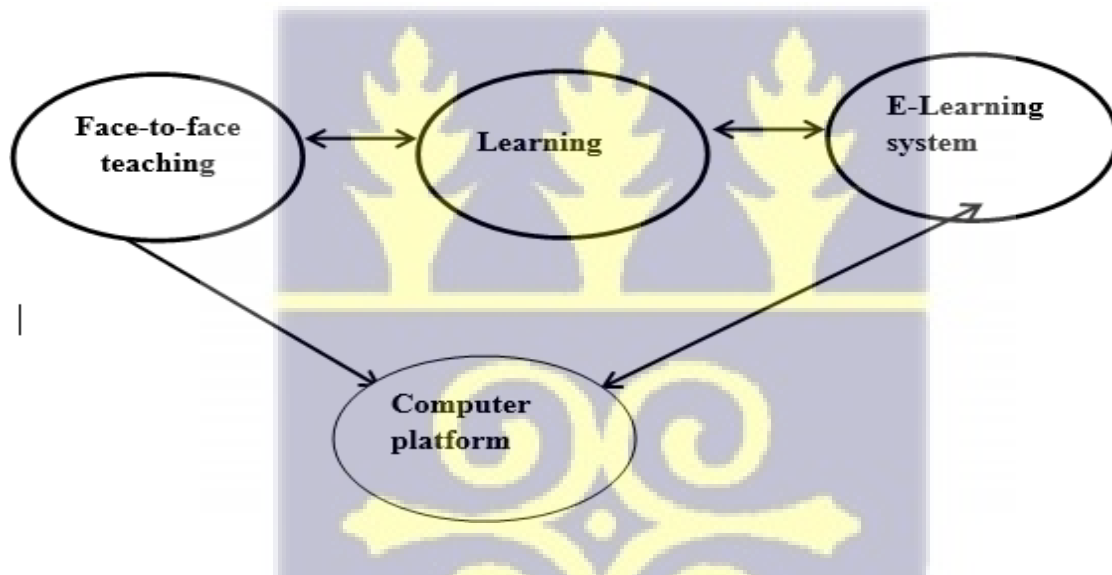


Figure 1: Blended Learning

Source: Lin & Wang (2012)

### 2.3 Type of ICT /Technologies

With the invention of computer technologies, institutions began to implement innovations to solve complex issues and to provide quality teaching and learning. The evolution of the internets has further deepened the importance of computer connectivity. These computers have made teaching

and learning more easily by incorporating novelties and new approaches to the academic environment.

Discussed below are the advancements empowered by ICT that brings improvement to teachings and learning processes.

### **2.3.1 Web Information Systems**

This is a system that uses internet web technology applications to transmit information and services to users of the information system. SunGard Higher Education (2010) claimed that “it is a software system whose main purpose is to publish and maintain data by using hypertext-based principles”.

The author further claimed that the web system has changed to more instructional systems and as a set of program applications that obtain information from organized sources and places.

Web Information Systems offers institutions instructional advancement and aid them to implement policies at work (SunGard Higher Education, 2010). According to the author, the outstanding web information system which is used over the world is “the Banner Unified Digital Campus worked”.

The system incorporates different institutions together.

### **2.3.2 Learning Management Systems**

Adzharuddin and Ling (2013) explained that Learning Management System (LMS) refers to online portals that connect instructors and learners. The systems provide a platform for learners and instructors to exchange information easily. According to the author, the system aid instructors and learners to share ideas in a classroom environment. The LMS gives tutors a personalized online space for their lessons. Instructors could interact with learners over online portals without physically meeting.

SunGard Higher Education (2010) claims that the greatest LMS contains more capability to get connected with web information systems (i.e. apply session records to save up approvals for exact courses). Outstanding LMS incorporates Blackboards, WebCT and Moodle. Chalkboards are the largest persuasive element among them because it is gotten from WebCTs (Adzharuddin and Ling, 2013).

Blackboards incorporate two organisations' product bundles (Bremer and Bryant, 2005). The authors further claim that Moodle refers to a permitted open base program package that is established parallel to LMS domains. Adzharuddin & Ling (2013) argued that institutions need to give adequate training and education to learners using LMS.

### **2.3.3 Virtual Reality**

Virtual Reality (VR) refers to a technological system that permits interactions with computers-simulated environments, irrespective of the nature of the environment. The author further states that the system provides the platform to experience, feel and touch the historical, current, and imminent.

Piovesan, Passerino, and Pereira (2012) asserted that learning involves the process of discoveries, explorations, and observations, as well as the perpetual constructions of facts. The authors further adduced that “the specific characteristics of the virtual reality can transform it as a mighty tool in service for everybody who seeks for an education evolution”. The utmost significant facet of virtual reality is precisely the possibilities, and virtual manipulations of targets to explore, analyse and study.

Clark (2006) posited that the system could be used to aid and ensure that instructions are interesting with the hope of getting learners' attentions and reducing the costs of simulations. The system

offers the advantage of acquiring knowledge with actual conditions with imaginary features. Clark (2006) claims that simulations in Virtual Reality could alter the ways instructors and learners get interacted with each other regarding the issue under consideration. The system requires interactions and inspires vigorous participation instead of being passive.

## **2.4 Stages of ICT Integration**

The integrations of information communication technology have drawn the attention of instructors to an increase in technologies. Hinostraza (2018) however argued that ICT should be used to facilitate learning instead of the only reason that the system exists. Tactics for ICT integrations are essential in resolving to require teachings and learnings in the milieu that contains significant periods and efforts in executing them.

Ng, Miao, and Lee (2009) asserted that ICT model can be divided into four stages. They are;

### **2.4.1 Emerging Stage**

This is the stage where new ICT tools are discovered by instructors and learners which include information, communication, and technology resource, their purposes, and their prospects and competence.

### **2.4.2 Applying Stage**

This stage involves the application of ICT tools in different fields or disciplines. This stage, therefore, helps the learners to make use of the ICT tools to discover new ideas. It includes the application of information communication and technology through its software and programs in a general form.

### **2.4.3 Infusing Stage**

This stage involves the skills to apply information communication and technology tools to accomplish a drive as in getting a task completed on time. This stage entails capacities to distinguish circumstances where ICT tools are incorporated to aid learning and solve factual difficulties.

#### 2.4.4 Transforming Stage

This stage involves the transformation of learning through the application of ICT tools. This stage helps to approach teachings and learnings with required information communication and technology materials to facilitate ICT integration patterns.

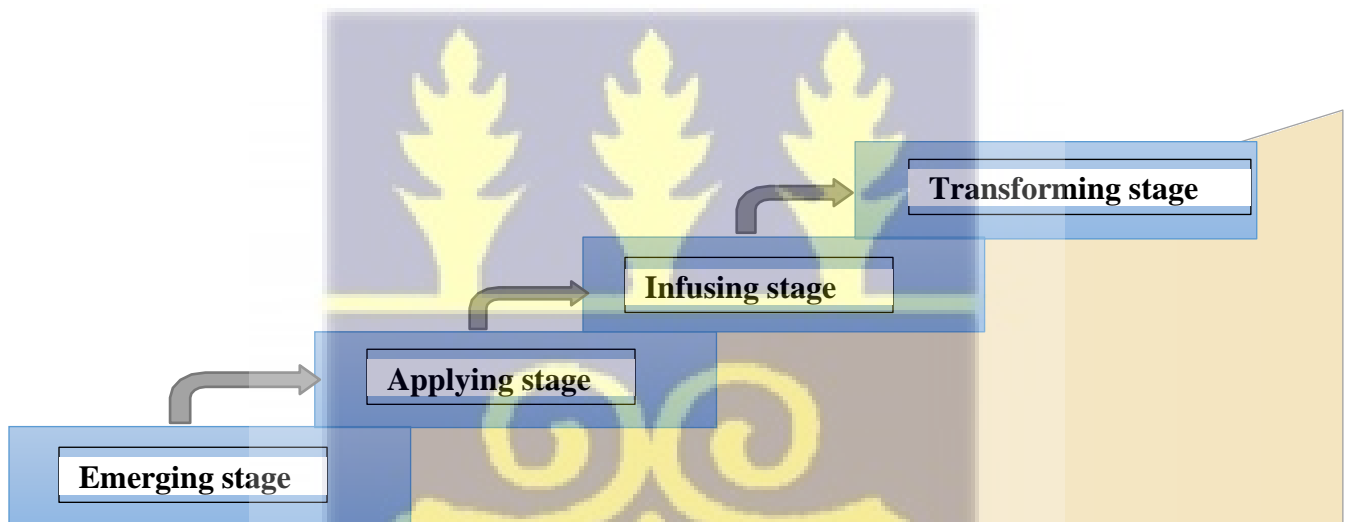


Figure 2: Stages of ICT Integration

Source: Ng, Miao, and Lee, (2009)

Figure 1. depicts the ICT integration process from the initial emerging stage into the application then to the infusing through to the transformation. Thus, they are primarily to achieve change in the ICT integration regarding technology uses in teaching and learning. The authors explained that progression through these stages is time-bound. Moreover, the transformation of teaching and learning requires more than ICT skills training for both teachers and students.

UNESCO Bangkok study on ICT integration in 2004, recommended the following, on how teachers and students could be trained to integrate ICT;

1. ICT- related skills training for teachers and students which is compatible with the objectives of the classroom to enhance skills development in teaching and learning.
2. Work place training for teachers by seniors or colleagues who are well experienced.
3. Coaching by peers to ensure that learning is achieved based on the needs of teachers and students to develop their ICT skills.

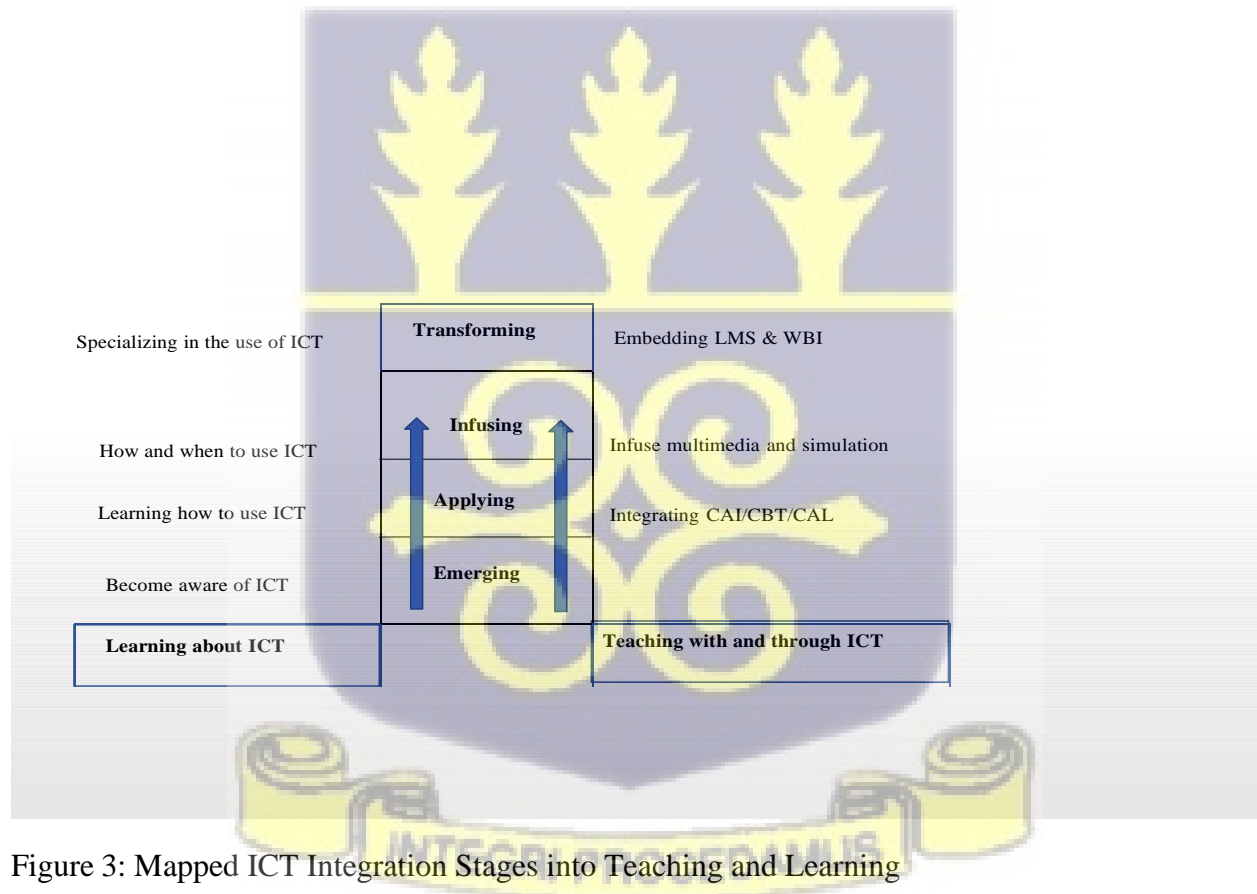


Figure 3: Mapped ICT Integration Stages into Teaching and Learning

(Source: Ng, Miao, and Lee, 2009,)

Figure 2 indicates processes that begins with knowledge about information

communication and technology and instructions via the same tools. The developing steps involve becoming conscious of ICTs by applying the software. The pervading steps involve ways to apply ICT tools “such as multimedia and simulation software”. Transformation is “integrating ICT and fusing learning management systems and web-based teaching and learning”.

Actual ICT incorporation should emphasize the instructional designs “by explaining how technology is used in this way and why”. ICT integrations have the possibility of engaging students. Additionally, “ICT can support various types of interactions in the learning environment: learner – content, learner-learner, learner-teacher, and learner-interface”. Hermawan & Deswila (2018) claims that “these engagements make the learning active and interactives”. Hernandez (2017) opined that instructional technologies provide revolutionary commitments to transform standards of teaching and learnings

## **2.5 The Call for ICT in Accounting Education**

There have been several calls for the Integration of ICT into accounting education (The Pathway Commission on Accounting Higher Education, 2012; Pan & Seow, 2016; and Wessel, 2007). A comprehensive study by Harrast, Strong, and Broomley (2010) on “more accounting theory or more information technology” about the technological strengths and weaknesses of undergraduate accounting students revealed that a large proportion of accounting students are deficient in requisite technologies even after completing their undergraduate accounting course work. This supports the arguments that there is a need to integrate technologies in the teaching and learning of accounting. Similarly, Rhodes (2013) conducted a study on the future of accounting education with the integration of ICT and concluded that the integration of ICT into accounting education

would bring the accounting graduate and employer into an alignment thereby adding value to the graduate to meet the demands of the employer in the technological environment. Also, Zureigat (2015) in his study on “Accounting graduates’ skills and employer needs: The Saudi case”, the findings showed that IT knowledge and skills are important for accounting students based on the employer’s view point in Saudi Arabia.

While many researchers who call for the integration of technologies in accounting education believe is the best approach to educating accounting students to experience deep learning. Others hold a different view about this approach. For instance, Bhasin (2012) argued that the best approach is for the teachers of accounting to have a good teaching method that would enable them properly integrate ICT in the teaching of accounting. He believes that the success of the integration of ICT into the teaching and learning of accounting heavily depends on the teaching method.

Similarly, Koehjer et al (2007) added that a teacher would need to have a coherent understanding of the technology, the teaching approach, content knowledge, and the relationship between them for effective integrations of technology into teachings and learning processes. Accounting educators, therefore, need an understanding of the technology, the teaching approach, content knowledge, and their relationship to integrate ICT in accounting.

Annansingh (2019) also stressed that teachers need to have appropriate instructional support that would facilitate the teaching and learning process arguing that students do not automatically get intrinsically motivated in the virtual learning environment without the appropriate instructional support. The Pathway Commission (2012) and the European Accounting Education Change Commission, both argued that current accounting education is deficient in integrating ICT into its teaching and learning.

Onumah et al (2010) asserted that accounting education is still technical and more emphasis is placed on peripherals to the neglect of soft skills. Babington (1997) added that accounting education has over-emphasized the technical aspects. Paisey and Paisey (2000) explained that the technical aspects of accounting education are a reflection of the characteristic professionally situated nature of accounting education (Merino, 2006).

## **2.6 ICT Integration in Accounting Education**

Teaching may simply be seen as a set of activities that are directed at guiding a child to achieve an expected outcome. It connotes understanding the child, guiding the child, and educating the child.

The method that is employed in the teaching and learning of accounting when integrating ICT should therefore take into consideration the curriculum design encompassing the study methods, the lesson planning activities, the teacher's subject knowledge, the teacher's technological knowledge, and the ability of the teacher to adapt the learner circumstances and abilities to the learning objectives. Undoubtedly, the teacher's ability to exhibit these qualities would reflect in the teacher's instructional methods and the assessment of the students. The instructors must also outline the performance indicators which would enable the learning to occur.

The varying degrees in which ICT is integrated into the teaching and learning of accounting have been established in the literature (Abdul Wahab, Mohammed & Dangi, 2017; Blankley, Kerr & Wiggins, 2018; Ezeami, & Akpotohwo, 2014, Ahmadi, 2011; Boyce, 1999; Gaviria, Arango & Valencia 2015). Gaviria et al., (2015), concluded that ICT integrations in the teachings and learnings of accounting programmes makes instructors communicate the instructional purpose at which they want to arrive.

Boyce (1999) posited that when technology is firmly placed within the best teaching approach, accounting departments can make the teaching of the technical content of accounting courses more

efficient. Ezeami and Akpotohwo (2014) employed a quantitative method to assess the integration of information and communication technology in accounting education (Instruction) in Ekiti state universities and found that there is strong evidence that ICT plays a great role in the teaching and learning of accounting educational courses. However, they recommended that universities offering accounting education should widen the areas of their ICT facilities' curriculum coverage. Similarly, Wahab, Mohammed, and Dangi (2017) also used a quantitative study to assess Technology-Based Accounting Education: Evidence on Acceptance and Usage where it was found that there is a strong relationship between past IT experience and the acceptance of IT-based education. It can be deduced from this study that the particular usage of a technological tool and how it is integrated into the teaching and learning of accounting programmes would depend on both the teacher and student experience for a such technological tool.

Furthermore Blankley, Kerr, and Wiggins (2018), the study revealed that students are obtaining valuable experience with a wide array of technological tools.

Ahmadi (2011) study also concluded that students adopt a positive attitude toward learning when technological tools are integrated into the teaching and learning process.

Generally, there is an understanding that technological tools play a vital role in higher education and this is posited by scholars in other jurisdictions. Dabbagli and Kitsantas (2011) explained that social media which is one of the emerging technologies provides an enabling environment for personal learning, facilitating formal and informal learning and offering a good pedagogical design that enhances learning. Bhasin (2012) also underscored the importance of ICT integration in higher education learning. He however cautioned that the needs of the various schools should be considered when integrating ICT into educational institutions. The next section discusses the motivations for integrating ICT in accounting.

## 2.7 Accounting Software for Teaching and Learning

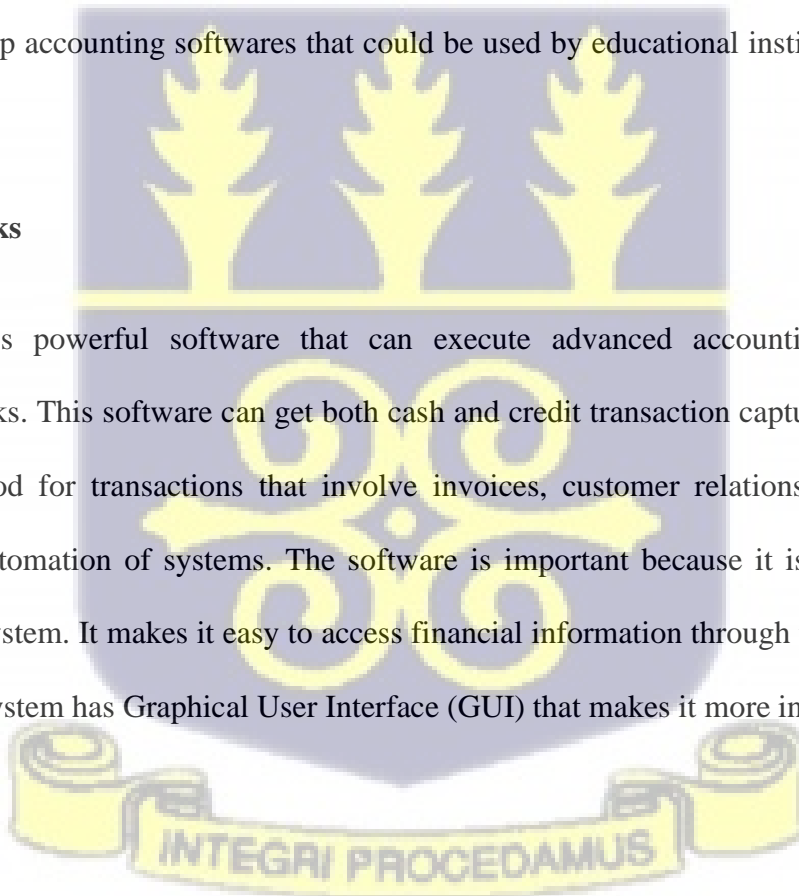
Accounting Softwares are computerized programmes that help to record, classify, analyse and prepare useful financial accounting reports such as income statements, cash flow statements, and balance sheets (Bahati, 2014). Teru and Hla (2015) asserted that to coordinate the processes of accounting effectively and minimize errors, accounting software/systems have become the panacea. The manual method of managing and processing accounting has several pitfalls such as difficulty in retrieving information, computational errors, and time-consuming. These pitfalls have paved the way for a modern approach where computer programmes are designed to suit the manual book-keeping and preparation of accounts at a faster and more convenient means. Williams (2022) identified five top accounting softwares that could be used by educational institutions. These are expanded below;

### 2.7.1 Fresh books

This software is powerful software that can execute advanced accounting and financial management tasks. This software can get both cash and credit transaction captures within a short period. It is good for transactions that involve invoices, customer relationships, expenditure tracking, and automation of systems. The software is important because it is built on a cloud infrastructural system. It makes it easy to access financial information through the internet across the globe. The system has Graphical User Interface (GUI) that makes it more instinctive.

### 2.7.2. HCCS

This specific software is configured purposely for institutions and academia which is multipurpose and proficient in executing tasks. The HCCS system streamlines processes in the preparation of



finances and payroll efficiently. It can execute well-informed financial accounting and reporting systems. The system is also good for budgetary and integrations, forecast expenditures, and predicting accurately.

### **2.7.3. Xero**

This software makes manipulations of accounting information very simple, effective, and efficient and also maximizes accounting information solutions. Xero is a “digital accounting assistant” which is built using the internet which makes it easier to obtain accounting data and information worldwide. It is also good for the preparation of cashflow statements and transmutation of the invoice, preparation of bank reconciliation statements among others.

### **2.7.4. Sage**

Sage software is an entire environment that is built with the purpose of assist perform accounting information and activities. This software can manipulate accounting information in institutions. The software offers opportunities to select between desktops and cloud-based operations.

### **2.7.5. Quick Books**

This is an accounting information software that processes financial transactions. It offers accounting information to users with charts of accounts, and customized invoices, tracks account payables, tracks account receivables, profits and loss statements, and balance sheets, and manages cashflows. It is the best accounting software for the preparation of payroll and other financial transactions.

### 2.7.6 Spreadsheet

The spreadsheet is extensively used throughout the whole world, either with accountants, engineers, and many other professions. When using Sage Pastel Accounting users may import and export figures using spreadsheets. It has features such as graphs, financial ratios, and a dashboard that has been imported or exported from Sage Pastel Accounting software.

### 2.8 Motivations for ICT Integration

Information and Communication Technology contributes a lot to the effective teaching and learning of accounting for both accounting educators and accounting students. As postulated by Dabbagh and Kitsantas (2011) students learn very well through both formal and informal engagements. Technological tools facilitate students learning by providing these formal and informal means with virtual stimuli for learning.

Through technological tools, accounting students and lecturers can access the right learning materials; at the right times and in the right volumes they need for the effective teaching and learning of accounting. Teaching accounting formulations through a virtual educational mediator type OVA is an accurate alternative to integrate current technology with a logical teaching-learning process, being didactic, comprehensive, and oriented to image viewing with a sense of active and proposed construction of the financial learning process logic. This is achieved by the intrinsic motivation of the person, manifested by the precision of the formula through the algorithm and the attention to the dynamics of the image with the perception of the sense of the financial problem. It takes into account conceptual elements of understanding and reflective praxis such as the notion of cognitive interaction between the dynamic image and perception of the understanding of the accounting procedure. An objective application of the dynamic graphical of accounting

formulations is therefore accomplished in different scenarios and examples (Gaviria et al.,2015). The use of ICT in the teaching and learning of accounting enhanced students' deep approach to learning. The student will strengthen their ability to connect what they have been taught with the situation at the computerized work place and real life, improve social interactions and realise personalization in learning thus increasing the effectiveness of teaching and learning (Sam & Indra, 2010).

Mikre (2011) argued that the contribution of ICT to the teaching and learning process of any educational establishment are numerous; ICT promotes students' active involvement in the lesson, provide student-instructor interaction, enhances collaboration among students, satisfy student quest for new knowledge and promotes the independence of learners. Lippiricottm, Matulich, and Squires (2006) study “To learn or Not to learn: The effect of Educational Technology on Learning in Accounting Courses” revealed that students obtain benefits from active technological learning tools and the tools are used to facilitate the educational experience of students and at the same lessening the burden of instructors. Similarly, Neto, Gomes, and Titton (2017) study concluded that the use of technology-driven flipped class promotes active learning in accounting resulting in better engagement and improvement in student performance. They, therefore, advised that universities should encourage the use of technological resources to improve the educational process.

Khan, Ahmed, and Amin (2017) observed that ICT tends to improve teacher performance which ultimately leads to student independent learning. As established by Mastrolia and Willits (2013) and McCombs and Whisther (1997) that the current generation of accounting students is so fascinated by technology and its tools, it is suggestive that then accounting educators must plan their instructional design and materials in such ways that would facilitate the acquisition of

knowledge and at the same time positioning them in line of the present generation. Vigdor and Ladd (2010) posited that the integration of ICT into the teaching and learning of accounting would enable learning to be exciting for these digital natives and helps in the realiation of the dreams of modern accounting students.

Another motivation for ICT integration in the teaching and learning of accounting is that it has successfully bridged the gap between time and space. Sam and Indra ( 2010) argued that the integration of ICT in the teaching and learning of accounting allowed accounting institutions to expand their markets, respond to business and environmental requirements, support cross-cultural and cross-functional teams of students to engage and work together and allows faster and more practical coordination between lecturers from various nations while maintaining the targeted level of quality delivery of knowledge of accounting education.

The integration of ICT in teaching and learning accounting allows for more time and space flexibility for lecturers and students to use the educational materials. It also allows for continuous testing of students of the content of such materials and allows the students more freedom in taking initiatives, learning on their own, being more creative, and individually studying at their own pace (Babalola & Tiamiyu, 2012). It also allows for continuous testing of students of the content of such materials and allows the students more freedom in taking initiatives, learning on their own, being more creative, and individually studying at their own pace (Babalola & Tiamiyu, 2012).

The integration of ICT in accounting education will substantially contribute to the development of technical competencies and allow greater emphasis to be placed upon accounting concepts, issues, and ideas within the classroom (Boyce, Carnegie, Lourens, and Bigelow, (1995) cited in Sam and Indra (2010). Boyce et al, (1995) explained that the use of computer- assisted- learning enables additional student contact time to be directed towards accounting case study deliberations and

similar discussions thereby assisting in fostering a learning environment that would promote the development of crucial competencies such as communication, interpersonal skills, and critical and analytical thinking skills. Green, Reinstein, and McWilliams (2000) adopted an outcome-based perspective to assess whether or not the use of interactive courseware affected the level of students' performance in understanding procedural material. They found that students' interest in accounting increased in greater proportion for the group of students that used the interactive courseware than the group that used the traditional lecture method. Glosch, Chawla, and Mallot (2012) argued that the integration of technological tools in an educational system provides a means of networking among students. Accounting students through the use of various technologies such as the internet and social media can network among themselves.

Friedman and Friedman (2013) submitted that educational institutions are aggressively using various technologies in the teaching and learning process because it has several benefits, from the delivery of instructional lessons content to a wider application outside the class room.

Meanwhile, Sutherland et al. (2004) had earlier argued that technological tools can be employed in teaching all subjects from history, and storytelling to the computations of the most complex and challenging mathematical operations. In conclusion, ICT contributes a lot to the teaching and learning of accounting programmes.

## **2.9 How ICT is integrated into Accounting Education**

Mishra et al. (2007) argued that effective learning outcomes are achieved by teachers and students depending on the choice and use of the learning technologies but not the functions of the technologies themselves. Drawing from their argument, it is conclusive that the practical ability of the teacher and the student to use technologies is paramount for the achievement of teaching and

learning. These technologies may include Virtual Learning Objects, Virtual Learning Environments, Virtual Classroom Soft wares, mobile phones, and others.

Virtual Learning Objects are tools characterized by reusability, adaptability, granularity, modularity, interactively, conceptuality, accessibility, portability, and durability. Virtual objects include a variety of didactic materials (images, videos, games, sites, etc). It is a collaborative environment supported by technology that integrates several different types of VLOs in a common context. Applying VLOs in teaching accounting goes beyond its computing applications of accounting and technic processes to graphics and financial variables for models to decision-making and financial responsibilities. VLOs enables the visualisation of integrated and holistic formulas, graphs, and analysis through a complex and complete process of teaching financial variables that allows for greater precision and technical objectivity (Gaviria et al.,2015). It allows for images from the computer screen to be displayed on a classroom board using a digital projector making it possible for both teachers and students to interact with the images on the screen using a tool or a finger. Accounting problems in budgeting cost accounting and management accounting can be easily explained and understood by students due to the visualisation of concepts. Students can also integrate this tool to have their studies. Sutherland et al. (2004) asserted that VLOs play a very important role in connecting teachers and their students in a classroom setting. There is a general agreement that images create sensory stimuli for learning (Bhasin, 2012). VLOs, therefore, open up the students to collaborate and improve interactions during the lessons.

A virtual learning environment (VLE) is a set of teaching and learning tools designed to enhance the student learning experience by including computers and the internet in the learning process. The components include curriculum mapping, student tracking, outline support for both teacher and student, and electronic communication (Kumar & Sahoo, 2020). The internet provides a lot of

information that facilitates the availability of students learning materials online and helps teachers prepare their lessons. Computers enable the audio-visual representation of lessons thereby making the teaching and learning of accounting interactive and interesting. The same lesson which would have been boring becomes interesting due to the unique characteristics that the computers add; there is colour, there is sound and there is movement. The lesson becomes interesting due to the audio-visual effects. Computer programs such as PowerPoint, word processors, and spreadsheets can help teachers to present information and track the performance of their students and at the same helping students solve accounting questions. The use of VLE in teaching accounting is pivotal to facilitating active learning as it enables the achievement of different teaching and learning goals simultaneously.

Virtual classroom software can be used for live interactive online classes which is essential while teaching accounting. It includes a lot of practical and conceptual aspects than theories. It is customized to individual learners and makes them smart and has problem-solving skills (Kumar&Sahoo,2020). Virtual classroom software enabled teachers to present graphs, text and illustrations, videos, and other tape-recorded information in accounting lessons thereby making the teaching and learning of accounting interesting. The students can also use this software for group discussions and tutorials on accounting questions.

Mobile phones and tablets are also used by teachers and students to generate and share information. Teachers and students can host and connect respectively to zoom meetings and free conference calls to have lectures, give assignments, organize tutorials and even evaluate and undertake assessments (quizzes and examinations) using their mobile phones and tablets. These phones and tablets can also be used to support online interaction among students and lecturers or amongst the students themselves thereby improving their networking.

Selwyn (2011) argued that technological tools are experiencing a surge in educational systems in terms of their usage due to the numerous advantages they offer to improve teaching and learning. Indeed, technological tools have given society a sustainable change to the generation and sharing of information and have helped in improving ways in which social activities are being carried therefore accounting educators and students need to embrace these technological tools and integrate them into the teaching and learning of accounting to benefit from these innovations

### **2.10 Challenges of ICT Integration**

Although the benefits of ICT integration in teaching and learning accounting have been acknowledged in the literature, other scholars still maintained that the use of ICT in the teaching and learning of accounting comes with a lot of challenges. Gray, Annabell, and Kennedy( 2010) warned that the influence of technology on students goes beyond the classroom setting with each student having a unique perception of the technology and that educational institutions need to be aware of this unique perception in order not to quickly run into the generalization of the advantages of ICT.

Mistra et al (2007) in their study concluded that mere possession of technology knowledge cannot achieve the best learning outcomes. They explained that the technology knowledge needs to be augmented with the content knowledge as well as the best teaching method.

One challenge identified in the literature is the lack of ICT tools and technologies to facilitate ICT – based teaching and learning by accounting students and lecturers. For instance, Adu – Manu, Arthur, and Yeboah (2013) study explained that learners although hold mobile phones of some sort, only a few of them owned smartphones. This phenomenon according to them does not help in the use of ICT in teaching and learning.

Studies have also shown that students use ICT tools and services for their interactions than academic purposes (Mok, 2012). For example, it has been reported that Facebook, Instagram, Youtube, and Whatsapp have been widely used among university students, but many learners esteem these technologies as extra distinct and societal networking and therefore use these tools in a more informal and unregulated manner (Selwyn, 2007). This diverts the academic work to other activities not suitable to facilitate their learning outcomes.

Also, inadequate software training for both instructors and students continues to be a source of worry when it comes to ICT integration in accounting education. Most instructors do not have the requisite knowledge to integrate technologies into their teaching and to guide students to experience the needed learning outcomes. Some lecturers still employ the traditional lecture method because they do not want to embarrass themselves before their students. It is therefore imperative that regular software training is organized for both students and lectures.

A comprehensive study conducted by Addy and Offori – Boateng (2015) explored the level of ICT readiness by universities in Ghana. The findings indicated that ICT readiness in Ghanaian universities is still in its infancy. The study revealed that most universities lack adequate ICT laboratories and ICT infrastructure development. The findings again identified high the and expensive nature of software infrastructure as the major challenge. This affects the successful integration of ICT in accounting education.

The integration of ICT in the teaching and learning of accounting does not exist in a vacuum. It must be supported with strong internet connectivity. In a developing country like Ghana, there is always low internet connectivity and this makes the integration of information communication

technology into teachings and learnings to be frustrating. ICT integration must be supported with broadband to make it interesting.

From the analyses above, the motivations for the use of ICT in accounting outweigh the challenges. It is therefore imperative to consider the integration of ICT in accounting to improve the teaching and learning of accounting.

### **2.11 Teaching Approaches for ICT Integration**

Duff and Cunningham (1996) cited in Amin (2013) argued that contemporary learning theory needs a re-orientation of how the learning was perceived. To them learning in contemporary times is an active-based process of constructing knowledge rather than acquiring knowledge and instruction is seen as the process by which the teacher facilitates this knowledge construction by providing the enabling environment for the students rather than transmission of knowledge.

The Accounting Education change commission (1990) had its number one position statement on the objectives of accounting education that accounting students should be active participants in the learning process and should learn by doing. With this call from the commission, accounting educators need to explore, diversify and redesign their approach to the delivery of their lessons to emphasize the acquisition of the skills that accounting students need to have when integrating ICT into accounting. Ngwenya (2014) argued that the present face of technological development requires accounting educators to re-conceptualize the meaning of accounting and design their teaching methodologies, lesson planning and methods of assessment to aid accounting students experience effective learning and necessary skills fit to function after the completion of their undergraduate courses. Similarly, Wilson and Boateng (2014) asserted that the traditional

approaches have varying limitations. In this section, the various teaching methodologies needed for the integration of ICT in accounting are presented and analysed.

### **2.11.1 Problem-Based-Learning Method**

Freeman, Hencock, Simpson, and Sykes (2008) asserted that a major task that has been recommended for accounting educators is to build and assess the development of generic skills across the entire business curriculum of higher institutions. Albrecht and Sack (2000) agreed that it is time for accounting education to move from the lecture method to a more advanced approach to teaching that would convey critical knowledge, skills, and abilities to accounting students. One major response to these calls and other several calls from the accounting profession is to develop and implement problem-based- learning.

Problem-based- learning has been explained as an approach that is more active, interactive, and collaborative emphasizing student-centered learning (Azar, 2009; Hansen, 2006 & Siaw, 2000). Under this method, the students bring their existing knowledge and interest to the learning process where knowledge is made and not acquired. Problem-based- learning involves confronting students with problems from practice which serves as a stimulus for learning. It makes students think critically and analytically and enhances their skills to develop problem-solving skills. Tan (2004) outlines three basic building blocks on which problem-based learning relies. These are; content coverage to problem engagement, the role of lecturing to the role of coaching and finally students being passive learners to active learners. Strobel & Barneveld (2009) posited that problem –based-learning helps students to develop effective problems skills, helps students to be self-directed, encourages collaborative learning, and also helps students to develop flexible learning skills.

The Accounting Education Change Commission 1990 report emphasized that the “overriding objective of accounting programmes should be to teach students to learn on their own. Flanagan (1997), cited in Hussin and Manaf (2011) asserted that problem-based-learning is a means of responding to the criticism from the accounting professional bodies on the perceived inadequacies among accounting graduates in communication skills, information technology competence, problem-solving skills, and the ability to work effectively in groups. Flanagan (1997) therefore stressed the use of problem-based learning in introductory accounting courses.

### **2.11.2 The Case Study Method**

A powerful teaching methodology that is being recommended in the literature for integrating ICT in accounting is the case study method. The case study method has been argued by scholars to solve most of the criticism of accounting education (Boyce, 2001; Adler & Milne, 1997; cited in Healy & Maeve, 2010). Biggs (1989) cited in Healy and Maeve(2010) explained that the case study method has the advantage of fostering students with the task of analysis, providing the contextual framework which brings relevance, facilitating integration with others through small and larger groups discussions and it also provides a motivational context of reasoning, decision making and proving the learner with activity. However the ability to realise the potentials of the case study method is reliant on the extent and level of student engagement.

Healy and Maeve (2010) agreed that the case study approach requires a certain range of skills by instructors for it to be successful. They warned that lecturers should not present only a single case or dominate the case discussions as such would prevent the student's opinions and insights. As a learning approach, case studies place much emphasis on student preparation and discussion of real business problems, culminating in the requirement to make managerial decisions. The case study

method requires students to identify relevant issues, perform necessary computations from quantitative information, identify appropriate arguments, exercise judgment to conclude, defend a particular position in the classroom situation, evaluate the position or perspectives of other students and modify their position. Boyce et al. (2001) argued that the benefit of the case study method is that by presenting technical and theoretical issues in a very practical context, the approach can contribute to a dearth of understanding by fostering an active approach to the learning of accounting.

Ideally, with a case study approach, accounting students are encouraged and supported to always discuss emerging issues in the field of accounting. Libby (1991) cited in Healy and Maeve, (2010) however battled that the case study method as a teaching and learning method is yet to be fully utilized in accounting education. Several reasons have been cited to support the claim. She argued that the cases are always too challenging and this makes lecturers face resistance from the students. Again, control of learning activities and classroom discussions are activities many accounting educators are not comfortable with. Class size, teaching space, and the nature of the accounting curriculum which is professionally-technical-focused are all factors inhibiting the successful use of the case study method. Besides all these, Libby (1991) rated institutional factors high as setbacks to the implementation of the case study technique. When accounting educators are integrating ICT into their teaching of accounting, they must employ the case study approach where students are guided on how to use technological tools to solve business problems which would improve understanding of accounting issues discussed in class and also be relevant to the wider society.

### **2.11.3 Experiential and Activity-Based Learning**

This Is Yet Another Method That Can Be Utilised by accounting educators to realise the current demands of accounting graduates. Shrivastava (2010) describes this approach as active learning

skills in which students learn by action through exercises that are given to them by their instructors. The teaching and learning of accounting by its nature requires action as the subject is best learned by constant practices through an engagement of activities.

When teachers adopt this method of teaching, the practical problems of accounting issues are presented to students through several activities. Students would therefore learn to cooperate in groups and to critically analyze, examine and evaluate accounting problems.

Moore (2010) explained that the main advantage of the activity and experiential learning approach is that, it inculcates in the students the spirit of teamwork and aroused their interest to develop basic reasoning capabilities.

Kolb and Kolb, (2005) argue that the ideal learning cycle is the one in which the learner experiences, reflects, thinks, and acts. With activity and experiential approach, the individual learners are recognised to have different learning styles ranging from concrete experiences and abstract conceptualisation to reflective observation and active experimentation.

Under this approach, there are six identified propositions. They are; learning is viewed as a process, learning integrates the student's new experiences into their existing knowledge, learning gives different adaptation to the world, learning is a process that engages a total person and not just a cognitive process, learning articulates the assimilation of new experiences into existing theories and concepts and finally learning is a process of social knowledge creation and re-creation in the personal knowledge of the learner. Experiential learning is good in business education however its effectiveness depends on experience, reflection, critical thinking, and action.

#### **2.11.4 Other Teaching Methods**

This refers to different ways, means, and methods that accounting educators can adopt in the teaching of accounting when integrating ICT. These may include exchange programmes with sister

universities, workshops for accounting students, field visits to other accounting institutions, and seminars. With exchange programmes, accounting students can learn from sister schools how accounting is being taught over there using different technological tools in addition to what they already experience in their mother institutions. Workshops would enable accounting students to have practical training on how to interact with these technologies and their application in accounting education.

Albrecht and Sack, (2000) cited in Amy, (2004) posited that there is a general agreement for accounting educators to move away from the lecturer method to other practical means of educating accounting students.

## **2.12 Theoretical Review**

Theories are very useful in research in that they help to explain and predict a particular behavior or action. This study embraces the theory of constructivism, and the technology, pedagogy content knowledge theory which is useful in explaining how ICT should be integrated into the teaching and learning of accounting.

### **2.12.1 Technological, Pedagogical, Content, Knowledge Theory (Tpck)**

This theory is built on Schulman (1987) concept of Pedagogical Content Knowledge.

Schulman (1987) posited that for effective teaching and learning to take place, teachers need to have a mastery of the content and as well should design the curriculum in such a way that the learner's needs are taken into consideration. Again, the teachers must choose the appropriate instructional methods that would enable the students to experience deep learning. Schulman (1987) argued that the three components are closely related and a coherent understanding of their

relationship will help achieve the intended purpose of the teaching and learning process. Mishra et al (2007) extended Schuman (1987) works by adding the component of technology. They argued that technology could enhance the teaching and learning process and for successful integration of technology in teaching any subject, content knowledge, pedagogical knowledge, and technological knowledge are required hence the Technological, Pedagogical Content Knowledge Theory. As postulated by Mastroliia and Willits cited in Olivera et al 2013, the newest generation of accounting students is better familiarised with technologies, the TPCK theory is relevant to equip teachers and students with the requisite skills and efficiencies needed in classrooms to improve teachings and learnings processes. The elements of the theory are interrelated and an understanding of the separate elements is not enough but their relationship is crucial to facilitate the teaching and learning outcomes. The elements of the theory are explained below;

### **2.12.1. Technological knowledge**

This means that for the teachers to successfully use technological tools or technologies, basic skills of computer or technology skills are required of the teachers themselves. Thus in deciding to integrate technologies into the teaching and learning process, the teachers themselves must know how to use these technologies, what technologies would be appropriate for the purpose at the time and how the technologies function. In the same light, the students should also have core skills in the use of technology. Mishra et al. (2007), posited that it is important for both teachers and students to have skills on how to use the technologies arguing that it is the only way the technologies can be applied to the content and pedagogical knowledge.

### **2.12.1.2 Pedagogical knowledge**

Pedagogical knowledge refers to knowledge about the various methods or teaching strategies that should be employed by the teacher to help students experience the needed learning outcomes. According to Mishra et al. (2007), pedagogical knowledge refers to the knowledge about the various methods and processes of teaching and learning. Schulman (1986) and Mishra et al. (2007) argued that knowledge about the various pedagogic methods enables teachers to tailor their instructional approaches in such ways as would enable them to be at the same level with the learners and this helps achieve the necessary learning outcomes. According to them, when the approach is not in line with the circumstance of the learner then the learner would not achieve the learning outcomes efficiently.

### **2.12.1.3 Content knowledge**

Content knowledge refers to the knowledge of the subject matter in question. Teachers need to have a good mastery of their subject matter to enable them to help their students to learn. A good mastering of the subject means that the teacher has full control of the subject knowing fully what it entails and understands it both in theory and its practical implications. According to Mishra et al. (2007) and Schulman (1987), every subject has its unique features which require different skills of delivering to learners. They argued that having control of the content will inform the method to be adopted and the technology to use to suit the content.

Mishra et al. (2007) argued that those components are interrelated and their relationship must be understood to successfully integrate technologies into the teaching and learning process to enhance student deep learning. The interrelated components are shown in figure 2.1 below;

1. The pedagogical content knowledge means how a particular subject is being taught. It explains how a teacher chooses his teaching methods /strategies based on specific content he/she wants to carry out.
2. Technological content knowledge explains the choice of the appropriate technologies in line with the content-based instructions.
3. Technological pedagogical knowledge means choosing the right technologies to much a teaching approach to teaching
4. The Technological Pedagogical Content Knowledge stipulates the teaching of specific content-based materials with the right technologies and the best teaching method that would take into consideration the needs and the circumstances of the learners

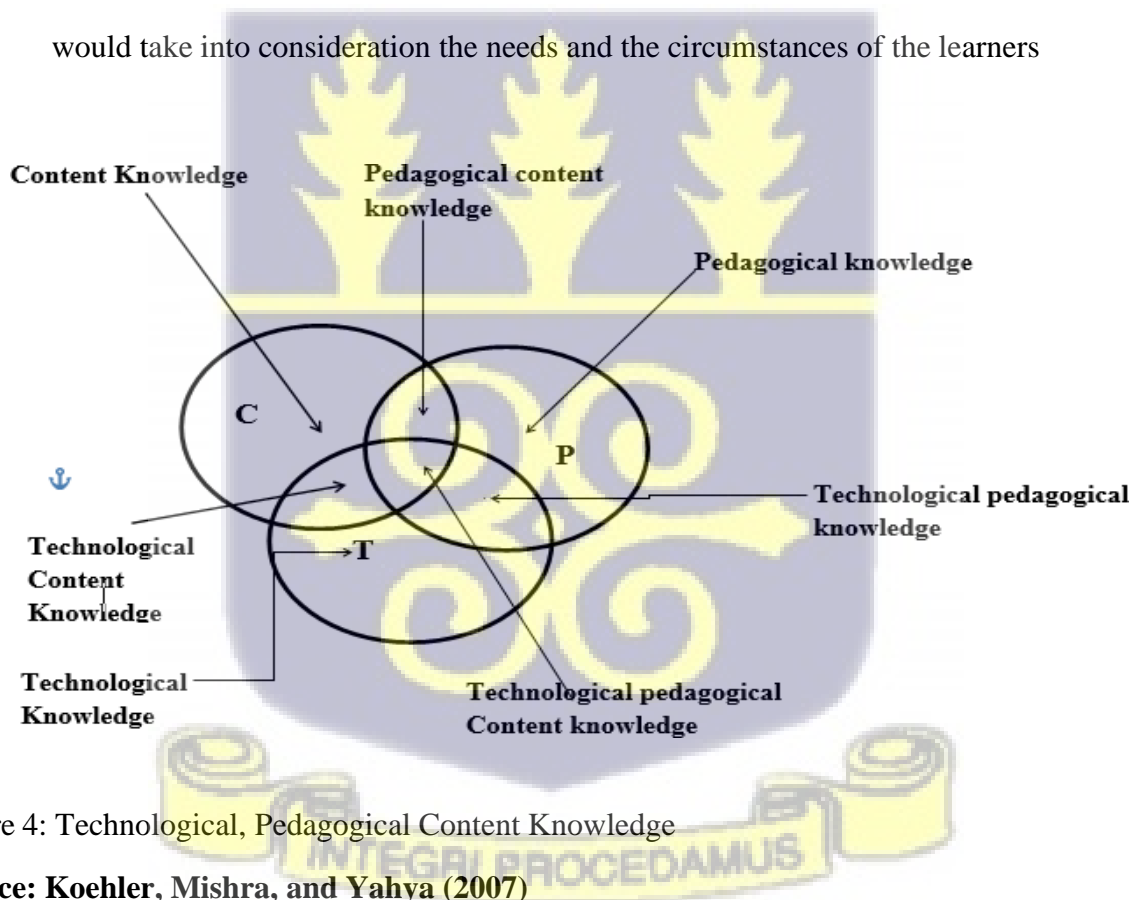


Figure 4: Technological, Pedagogical Content Knowledge

Source: Koehler, Mishra, and Yahya (2007)

To explore how ICT is integrated into the teaching and learning of accounting, the study draws on TPCK theory. This theory is relevant to this study in that it would enable the researcher to

understand how accounting lecturers and students are integrating technologies in the teaching and learning of accounting. Effective and efficient integration of technologies requires careful development of the relationship between the elements of the TPCK. It is important to state however that no single method is applicable across all fields when integrating technologies in the teaching and learning process.

### **2.12.2 Constructivism Learning Theory**

Jia (2010) argued that constructivism learning theory is furtherance of behaviorism as it arrives cognitivism. Constructivism as a learning theory has both philosophical and psychological origins like any other learning theory. Philosophically, Kant's studies on the integration of rationalism and empiricism provide a kind of constructivism. Psychologically, Dewey, Piaget, and Vygotsky have been acknowledged to contribute immensely to the development of constructivist thought and its application in the classroom and students' learning. There are two main forms of constructivism; Cognitive and social constructivism. Constructivism theory is based on knowledge and learning. It seeks to understand how students come to gain knowledge and investigates the process through which they learn as well as the phenomenon of knowing generally. Constructivism does not view knowledge as universal truths that can be transferred from one person to another but instead sees it as a phenomenon that must be unearthed in a gradual and emerging fashion through many explanations and descriptions from the attempts of human beings to understand the world. Girard (2010), argued that the constructivism approach takes a less rigid perspective than its positivist counterpart which believes that knowledge can be measured realistically. Girard (2010) agreed that constructivism learning theory is based on the following assumptions; the role of the individual is critical in knowledge construction, individual learners' personal and social

experiences, and the knowledge that is gained may not accurately represent the external reality. Fosnot (2013) opined that although constructivism is not a teaching method, it can be said to influence greatly the learning process with the possibility of creating different teaching practices better than the traditional approaches.

## **2.12.2 Ideas of the Constructivism Theory**

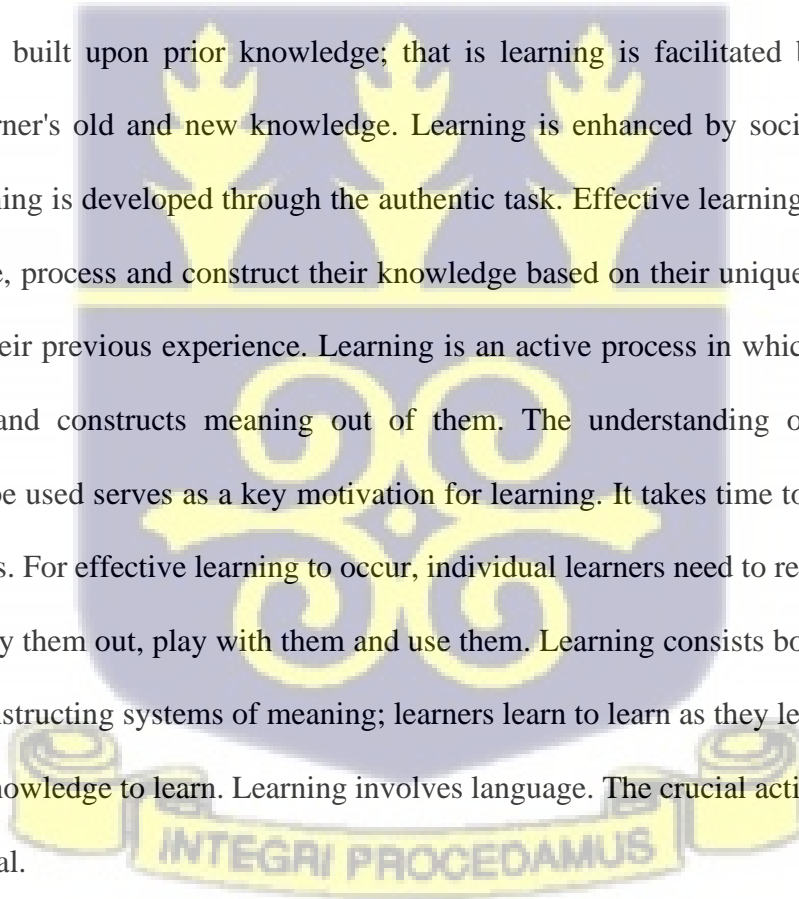
### **2.12.2.1 On learning**

Learning occurs when individuals construct their knowledge.

Emphasizes is on knowledge construction rather than knowledge transmission.

New learning is built upon prior knowledge; that is learning is facilitated by the interaction between the learner's old and new knowledge. Learning is enhanced by social interaction and meaningful learning is developed through the authentic task. Effective learning takes place when the learners code, process and construct their knowledge based on their unique understanding of the world and their previous experience. Learning is an active process in which the learners use sensory inputs and constructs meaning out of them. The understanding of ways in which knowledge can be used serves as a key motivation for learning. It takes time to learn; learning is not instantaneous. For effective learning to occur, individual learners need to revisit ideas, ponder over the ideas, try them out, play with them and use them. Learning consists both of constructing meaning and constructing systems of meaning; learners learn to learn as they learn.

One needs the knowledge to learn. Learning involves language. The crucial action of constructing meaning is mental.



### **2.12.2.2 On teaching**

The role of teacher is seen as a helper and the driver for students. Teachers should not be knowledge transferors which students will only be at the receiving end. The teachers are seen as academic consultants for students guiding the whole teaching process. The teacher needs to inspire and guide students to learn effectively and not be regarded as the sovereign authority who do not respect the views and opinion of students. Teachers need to create a serene environment that promotes the interaction between themselves and their students where students are free to express their views. The relationship between the teacher and his students should democratically facilitate an equal teacher-student relationship.

### **2.12.2.3 On knowledge**

Knowledge is not static and is dependent on a particular circumstance and time. Knowledge cannot provide a solution to all the problems of the world and subject to change as new ideas come up. Constructivist believes that knowledge cannot be applied to certain problems directly and assumes that individual learners have different understandings a phenomenon and that this different understanding is heavily based on each learner's experience and background.

### **2.12.2.4 On students**

Constructivists believe that each student goes to the classroom with rich experiences that they successfully gathered previously. As some issues appear that these students may be green about, they still make some logical guesses and assumptions based on their previous knowledge and experiences. Teachers, therefore, are advised to take students previous knowledge and experiences as a starting point to assist them to construct the needed knowledge. Students are put in the center

of the learning process as opposed to the traditional approach where students are regarded as knowledge receivers, where they passively received knowledge from teachers.

Judging from the above, it is conclusive that the constructivism learning theory has advanced explanations for teaching and learning guides different from the traditional approach. The theory provides new innovative ways of teaching and learning. Students are the subject of teaching and teachers are only facilitators by providing the enabling environment for these students to construct their knowledge. The theory stressed the need for the teacher to be democratic and not assume a position of authority. All these ideas contribute greatly to modern methods of teaching and learning. Since the present study looks at ICT integration and the teaching and learning of accounting programmes, the theory is relevant in that it would enable the researcher to be aware of the various teaching approaches accounting educators are adopting for the integration of ICT in accounting. As put by Fosnot (2013) the constructivism learning theory is not a teaching method itself but it tends to influence the teaching methods and practices of accounting educators.

### **2.13 Justification of Triangulation of the Theories used in the Study**

The study used both the TPCK and the Constructivism theories due to the nature of the objectives of the study. The use of the TPCK theory enables the researcher to understand how accounting lecturers and students are integrating technologies in the teaching and learning of accounting as well as why ICT is used. Effective and efficient integration of technologies requires careful development of the relationship between the elements of the TPCK. This, therefore, enables the researcher to achieve objectives one and two of the study. The Constructivism learning theory has advanced explanations for teaching and learning guide different from the traditional approach. It provides new innovative ways for teaching and learning thereby enabling the researcher to

understand the teaching approaches to use for integrating ICT in accounting hence its usage in the study helps in accomplishing objectives four and three of the study.

Hence, this triangulation helps to reduce the bias involved in using one single theory or approach in conducting research. It enhances the validity and credibility of approaching the same topic with two different approaches by giving a true picture of the research problem.

### **2.14 Summary of the Chapter**

This section attempted to review the kinds of literature which were essential for the research. Some of the themes included the general overview of teaching and learning in universities, the motivation for ICT integration in the teaching and learning of accounting as well as the challenges, the integration of technological tools, and the teaching approaches for ICT integration in accounting. It is deduced from the literature that ICT integration in accounting is an innovative means of improving the teaching and learning of accounting. It is also realized that students and lecturers integrate ICT into these teaching and learning activities. Some of the motivation for ICT integration in accounting education includes the promotion of effective teaching and learning, improving active participation, bridging the distance gap, and effectiveness of communication. The challenges included internet connectivity problems, inadequate ICT laboratories, and inadequate training for ICT integration.

The study also reviewed two theories relevant to the study. It discussed the Technological Pedagogical Content Knowledge Theory and the Constructivism Learning Theory. These theories were employed in understanding how students and lecturers integrate ICT in teaching and learning accounting as well as the teaching approaches for integrating ICT in accounting.

## CHAPTER THREE

### METHODOLOGY

#### 3.1 Introduction

This part of the study highlights issues with the procedures adopted to undertake the study to accomplish the study objectives. It covers the research paradigm or philosophy, research design, the population of the study, the sampling procedures, data source, and data collection methods, how the data collected was analysed, and the ethical consideration of the study.

#### 3.2 Research Paradigm

Boateng (2019) explains the research paradigm as the researcher's set of beliefs, a system of ideas, a set of assumptions and views the researcher brings to bear on the research. Thus a research paradigm influences the researcher's understanding of knowledge and the world and this is usually reflected in the research. Mertens (2015) asserted that a research paradigm is a way of perceiving the world and it encapsulates a particular philosophical belief that directs a researcher's decisions as to how an enquiry is carried out. A paradigm is usually connected to the ontology, epistemology, and axiology of the researcher (Saunders, Lewis & Thornhill, 2009). Ontology is the researcher's attempts to seek answers to the question of reality. Epistemology is how and the nature of knowing and axiology is the values the researcher attached to the research (Rehman & Alharthi, 2016). Rehman and Alharthi (2016) argued that the paradigm of a researcher is influenced by the objectives the researcher set to achieve under the study. Therefore, owing to the nature of the

research objectives of this study, the researcher employs critical realism as the research paradigm. Critical realism is a philosophy that makes a distinction between the “real” and the “observable” world and what is “real” cannot be observed and exists differently and independently from human constructions, human perceptions, and theories (Boateng, 2019).

The study seeks to explore the integration of ICT in the teaching and learning of accounting programmes hence adopting the critical realism paradigm is deemed appropriate for this study.

This enabled the researcher to ascertain an in-depth understanding of the matter, therefore, positioning the researcher to hold the reality of the issue under study. The critical realism paradigm is best used in qualitative research to explain outcomes and events’ occurring in their natural setting as it seeks to answer questions of how and why events or phenomena occur (Fletcher, 2016).

Since ICT integration is a phenomenon occurring in its natural setting (business schools) in Ghana, critical realism is fit for this study. Paar (2015) posited that one feature of critical realism is that it fits well with the ontology of complexity. The study deals with universities with lecturers and students of different cultural, social, economic, and technological backgrounds and capacities, the application of the critical realism paradigm would help answer questions as to how and why ICT could and should be integrated into the teaching and learning of accounting. Critical realism arises as a result of the weakness of positivism. It is a critique of positivism which states that humans can fully and infallibly know and measure reality. With critical realism, evidence that is being observed may come close to reality but is always fallible, social, and subjective reality. Knowledge cannot be known objectively and reality cannot be measured reliably and objectively (Roy, 2010). Critical realism argues that reality is independent of the mind.

### **3.3 Philosophical Stance of the Study**

The researcher believes that knowledge cannot be objective and reality cannot be measured. Knowledge is dependent on the circumstance in which one finds him/herself, it is time-dependent, depends on individual beliefs, values, opinions, and perceptions and it is also subjective and keep on changing (Roy, 2010). The ontological position adopted usually has a connection with epistemology. The researcher believes that knowledge can be acquired through the interaction of groups, and personal experience, and human beings can be studied through social interactions (Morgan & Krueger, 1998). Owing to the objectives of the study, the researcher is actively involved in the study as the researcher, seeks to explore and understand views as to how and why ICT should be integrated into the teaching and learning of accounting.

### **3.4 Research Design/ Research Approach**

Research design Draper (2004) argued that research design is the researcher's description of how, when, and where to obtain and analyse data. Kothari et al. (2006) posited that a research design is the arrangement of conditions in collecting and analysing data in a manner that aims to combine relevance to the research purpose with economy in procedure. The researcher believes that different views and opinions exist as to how and why ICT should be integrated into the teaching and learning of accounting hence adopting a qualitative multiple-case study research design. Crowe, Creswell, Robertson, Huby, and Avery (2011) posited that the case study approach allows for in-depth multi-faceted explorations of complex issues in their real-life settings.

Consistent with the study objectives, the researcher adopted the qualitative approach. This approach is deemed appropriate and suitable because it would help the researcher elicit appropriate information as to the integration of ICT in the teaching and learning of accounting programmes.

The qualitative method does not limit the scope and nature of responses to be elicited from the participants of the study. The method helps discover meanings that people ascribe to events that they experience in their natural settings (Boateng, 2019). Yin (2014) advanced the following in supporting the adoption of qualitative research methodology;

1. It provides a deeper understanding of a social phenomenon existing in its natural setting
2. It has the potential of dealing with the complexity of humans in multi-dimensions
3. It helps to understand the settings of the participants
4. It helps understand the meanings, views, opinions, and perceptions that participants ascribe to issues they experience in their settings.

It must be emphasised that the rate of ICT integration in the teaching and learning of accounting is still slow and studies into these areas remained limited. Adopting the qualitative method would aid in understanding people's views as to how ICT is integrated to improve the teaching and learning of accounting.

### **3.5 Population of the Study**

The study seeks to explore ICT integration in the teaching and learning of accounting programmes in Ghana and therefore considers its target population to be all business schools offering accounting degrees in Ghana. This means that the researcher would have a large number of students and lecturers to deal with and this necessitates the selection of a sample.

### **3.6 Sample and Sampling Technique**

A sample is defined as a manageable part of a larger group or a smaller part of the large group consisting of characteristics of the larger group (Alvi, 2016). Sampling is the process of selecting

a sample from the population of the study so that generalization can be made after the samples are being studied (Saunders et al., 2009). Saunders et al. (2009) argued that samples are selected based on certain criteria or guides known as the basis of the selection and this basis of selection is technically referred to as the sampling technique. A sampling technique entails the identification of the specific process by which the entities of the sample are selected (Cohen & Manion, 1994). This study employed various sampling techniques to come up with the required sample. This study utilized both probability and non- probability sampling techniques to arrive at the required sample size. In non-probability sampling, Purposive and Convenience sampling techniques were used. The purposive sampling technique enables the researcher to select participants or respondents that are especially knowledgeable about the subject matter (Creswell, 2007).

Purposive sampling allowed the researcher to select the universities in the country that are offering accounting courses for more than ten years. In probability sampling, the researcher employed stratified and simple random sampling techniques. The stratification technique used strata that were representative of the population. It is a probability sampling technique whereby the researcher divides the entire population into different subgroups or strata and then randomly selects the final subjects from the different strata (Cohen, Manion & Morrison, 2000). Stratification for the Universities was done first by type/category of universities that including Public Universities, Private Universities, and Technical Universities. For the study to be fairly represented, the researcher selects two institutions from each category. The technical universities selected are Accra Technical University and Bolgatanga Technical University. Accra Technical University is one of the first among the six polytechnics to be converted to technical university status under the technical university Act 2016 Act 922 and because of its location in the capital city, it attracts a lot of students and seems to be competing with the other universities. Bolgatanga Technical

University is one of the youngest technical universities and in terms of resources is inadequately resourced. The researcher seeks to understand how these institutions are integrating technologies to improve the teaching and learning of accounting and their motivations for the integration as well as the challenges.

The public universities, the University of Ghana, and the University of Professional Studies are selected. The University of Ghana is the premier university in Ghana with a large pool of students from all parts of the world. This enabled the researcher to have insights into how the business school of this premier university is integrating technologies into its accounting education. The University for Professional Studies had proven itself over the years as a noble university for professional accounting training institutions. Finally, the researcher selected Valley View University and Central University College since they were the first two private universities in Ghana to receive accreditation to operate as autonomous private universities in the country.

### **3.6.1 Sampling of students**

The Class of Level (400) and (300) students from the universities and technical universities respectively were also purposively selected for the study due to their large numbers and long exposure to the teaching of accounting. Students from the institutions were chosen for a homogenous focus group discussion. Two groups each consisting of six (6) students were selected from the six institutions. This number is in line with Krueger and Casey (2000) argument that the generally accepted number of participants considered sufficient for focus group discussions is between six (6) and eight (8).

In all 12 students were selected from each of the six (6) institutions making a total of seventy-two (72) students. Morgan and Krueger, (1998) explained that a minimum of 10-12 participants is

considered large enough to give the differences in views and opinions and smaller enough to control. A number of more than twelve (12) may limit the details of the responses and becomes difficult to manage. These twelve (12) students each from the institutions were selected by contacting the HODs of the various institutions to assist the researcher to obtain access to these students directly or through their student leadership.

### **3.6.2 Sampling of lecturers**

The selection of lecturers was done based on rank such as; lecturer, senior lecturer, and professor. Due to the lecturer's busy schedule, the convenience sampling technique was employed. Convenience sampling is a non-probability technique that involves the sample being drawn from that part of the population that is close at hand (Kombo & Tromp, 2006). The Heads of Departments were also selected by convenience sampling since there is only one per university in each accounting Department. The guiding principle in deciding the total lecturer's sample is the saturation exhaustion principle.

### **3.7 Data Collection Methods**

The study made use of primary and secondary data. The study conducted face-to-face interviews with twenty-two lecturers to ascertain their opinions, views, and experiences about how and why ICT should be integrated into the teaching and learning of accounting in the selected universities including their Heads of the Accounting Departments to obtain answers for the research questions. This interview lasted not more than fifteen minutes for each Lecturer due to their tight schedules. Severally, the researcher had to reschedule interviews with lecturers at various universities due to time constraints. Another effective method employed in the collection of the primary data is a

homogeneous focus group discussion among students to also solicit and understand their views as to how and why technology integration improves their learning. Six students in each session participated in an FGD to provide information based on a research question on ICT integration in teaching and learning. Each session lasted one hour. In all the researcher spent two hours in the two sessions with the Level 400 students in each University and Level 300 students in the case of the Technical Universities. Morgan (1997) argued that a homogeneous focus group discussion makes participants feel much more comfortable sharing their experiences because group members exhibit similar characteristics. Rubin (2005) argued that the provision of a face-to-face interview in a convenient and serene environment enables a researcher to dig deep into the meanings, opinions, and experiences respondents ascribe to a social phenomenon. This makes the researcher adopt the face-to-face interviews with the lecturers as this approach enabled the researcher to obtain a deep understanding of the issue at hand about the integration of ICT into the teaching and learning of accounting. The focus group discussion which consisted of a total of seventy-two (72) respondents (students) from the six institutions enabled the researcher to seek the collective experiences of students which leads to accurate and reliable information. However, both the interviews and the focus group discussion commenced after receiving ethical clearance from the various institutions and sending a consent form and information sheet to the institutions and the respondents of the study. The secondary data however was obtained from textbooks, journals, magazines, and other electronic media for the research objectives.

### **3.8. Data Collection Instrumentation**

The study used interviews and focus group discussions as the main instruments.

### **3.8.1 Interviews**

An appropriate review of the literature aided the interview guide that was used in assessing the opinions and views of lecturers. An interview schedule was designed to guide the face-to-face interviews of the lecturers. The first part of the interview guide looks at the lecturers' reasons or motivations for integrating technologies into their teaching. The second part of the interview schedule seeks to find out from the lecturers how they integrate technological tools and services in the teaching of accounting as well as the challenges they encounter integrating ICT in their teaching. The third part of the interview guide focused on the lecturers' views and opinions on the teaching approaches for integrating ICT in accounting.

### **3.8.2 Focus group discussions**

A phenomenological homogenous focus group discussions guide was designed for the students of the chosen institutions. The focus group discussion guide consisted of open-ended questions. The open-ended questions were used so as not to limit the nature of the responses from the respondents (students) thereby enabling fair and representative discussions of the issues under study. For a clearer understanding of questions to facilitate the accomplishment of the study objectives, the guide allowed for follow-up questions.

### **3.9 Reliability and Validity**

Roberts and Priest (2006) asserted that reliability and validity are two ways of demonstrating and communicating the research process and the trustworthiness of the research findings. They stressed that if the research would be helpful then it must avoid misleading its users.

Patton (2005) posited that qualitative researchers have to worry about the concept of reliability and validity when conducting a study because qualitative researchers are always involved in the naturalistic inquiry, studying real-world settings to generate narrative descriptions and construct case studies. Boateng (2019) proposed that qualitative researchers should adopt an appropriate research design and approach and should be mindful of their own biases such that their bias does not affect the reliability and validity of the findings of the study. In a similar argument, Mathison (1998) proposed the triangulation of methods as a panacea for solving reliability and validity problems in naturalistic and qualitative inquiry.

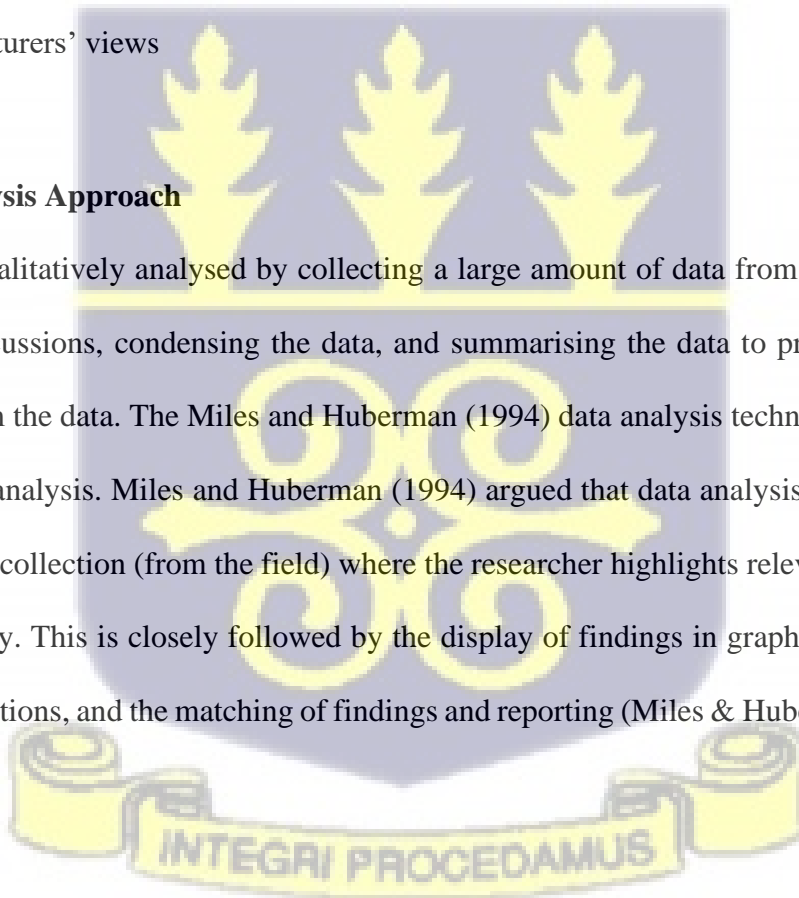
To ensure reliability and validity, this study employed Lincoln and Guba's (1985) model of trustworthiness in qualitative research as follows; confirm ability is based on the degree to which the study findings can be confirmed by other researchers without traces of the inquirer's imaginations except what was collected as data from the field. In the light of this, the researcher used tape recorders to have verbatim recordings of the opinions, views, and experiences of the respondents alongside note-taking during the interviews and focus group discussion sessions. The researchers, therefore, desist from reflecting on their own biases throughout the research process. The second principle that was employed to ensure reliability is credibility. According to Lincoln and Guba (1985), credibility is the extent to which confidence can be placed in the truth of the research findings and is the correct interpretation of the participant's views. The researcher ensured credibility by spending considerable time to get familiarised with the research objectives, ensuring the right rapport is established which enabled the interviews and the focus group discussions to be carried out in a congenial environment and also member checks after the interviews have been transcribed to ensure that codes are consistent.

Again, the present study ensured dependability which according to Lincoln and Guba (1985) involves evaluations of the findings, interpretations, and recommendations of the study in ways that are backed by the data from the participants. This was done by asking for clarification from the outcomes of the interviews and focus group discussions from the respondents at the analysis stage.

The present study also ensured “transferability” which according to Lincoln and Guba (1985) is the extent to which a study finding can be applied in other settings with other respondents. To ensure “transferability”, purposive sampling was used together with data coding and categorization to maintain content and descriptive consistency, by intensive descriptions of data from the field on students' and lecturers' views

### **3.10 Data Analysis Approach**

The data was qualitatively analysed by collecting a large amount of data from the interview and focus group discussions, condensing the data, and summarising the data to provide meaningful conclusions from the data. The Miles and Huberman (1994) data analysis technique was the main tool used in the analysis. Miles and Huberman (1994) argued that data analysis should start from the stage of data collection (from the field) where the researcher highlights relevant findings from the data summary. This is closely followed by the display of findings in graphical presentations, pattern identifications, and the matching of findings and reporting (Miles & Huberman, 1994).



In line with the research paradigm, the theoretical lens, and the objectives of the study, the researcher believes that the human instrument is possible of being refined to provide an enhanced meaning of the data. As set by Morgan and Krueger (1998) qualitative data analysis needs to be verifiable, systematic, sequential, and continuous. This however requires time and is usually frustrated by the delay, inadequate feedback, and inability to have alternative explanations. The present study in this regard analysed the data manually by systematically recording the data, transcribing recorded interviews, and then systematically constructing an explanatory and descriptive analysis.

### **3.11 Ethical Consideration**

Ethics is very crucial in the conduct of research particularly when the research involves human beings. Permission was sought from the management of the universities to be interviewed in the form of introductory letters from the Department of Accounting at the University of Ghana after obtaining the necessary ethical clearance from the University of Ghana Ethics Committee.

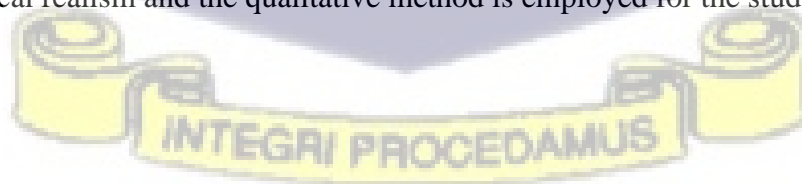
The main purpose of the research was explained to the respondents of the study to avoid a form of deception or misconception the respondents might harbor. The respondents of the study were made to participate voluntarily without any form of coerciveness. This allowed participants a free flow of thought and discussions.

There was no monetary enticement used as a means of influencing the views and opinions of the participants and the participants were made to understand that the research work is purely an academic exercise but not related or linked to any social or government policy. The confidentiality, anonymity, and privacy of all the respondents of the study were assured. In this case, the researcher ensured that the names of the respondents are not part of the study, and also

the researcher respected the ownership and value of information received from the participants of the study. All information received was used for the study only. The researcher developed codes and themes for the information received which is best known to the researcher alone and no respondent could be traced to the particular information provided. This ensured the anonymity of the respondents. During the interview process, participants were informed of their right to withdraw from the study any time they are not willing to participate again, participants were not also made to sit for long hours and the duration of the interview lasted between 45 minutes to 60 minutes. Participants were also informed of their right not to answer questions to which they do not have answers. The researcher also ensured that the interviews were conducted at times and places at the convenience of the respondents and in the right environment where there are no distractions. All materials relevant to the study such as articles, online materials, thesis, and books consulted are duly acknowledged by the researcher. The research was conducted following all the rules and regulations laid down for the conduct of the thesis at the University of Ghana.

### **3.12 Chapter Summary**

The chapter discussed the methods adopted to accomplish the study objectives. Consequently, the population of the study, sample and sampling technique, source of data, data reliability and validity, ethical consideration, and data analysis technique are all discussed. The research paradigm is critical realism and the qualitative method is employed for the study.



## CHAPTER FOUR

### DATA PRESENTATION AND DISCUSSION OF FINDINGS

#### 4.1 Introductions

In this chapter, the results of the study are presented and discussed based on the objectives of the study which seek to find out what motivates accounting students and lecturers to use ICT in their learning and teaching, explore how ICT is integrated into teaching, and learning of accounting programmes, identify the challenges that are encountered in the use of ICT by accounting students and lecturers, and to examine the teaching approaches needed for integrating ICT in accounting education. The data presented were obtained from students through focus group discussions and from lecturers or instructors through interviews. The findings of the study were then discussed later in the chapter.

#### 4.2 The Profile of Participants Interviewed

Table 1: Profile of Lecturers

Rank	Number Interviewed
HOD	6
Senior Lecturers	12



Assistant Lecturers	4
Total	22

Source: Fieldwork, 2021

In total, the researcher interviewed twenty-two lecturers from the selected six (6) universities. These are made up of Heads of Department which are coded H1 to H6 from the Accounting department and lecturers which comprise senior lectures (12) and Assistant lectures (4). The lecturers are also coded L1 to L12.

Table 2: Profile of Students

University	No of respondents	Level of student in the university
VVU	12	400
UPS	12	400
ATU	12	300
BTU	12	300
UG	12	400
CUC	12	400

Source: Fieldwork, 2021

The researcher had a focus group discussion with seventy-two (72) students. Two groups were formed from each institution and each group comprised six (6) students. All the group members were in attendance. The respondents in the focus group discussions are coded FGD1 to FGD72. The interview and the focus group discussion lasted for about 45mins and 1 hour respectively.

#### 4.3. Motivation for ICT Integration

This section probes the main motivations of lecturers and students integrating ICT tools and services in teaching and learning accounting. When students' and lecturers' views were solicited on the reasons why they integrate ICT tools and services in the teaching and learning of accounting,

various reasons were cited as serving as motivation for them to integrate ICT tools and services.

The emerging themes from their responses are presented below;

#### **4.3.1 Faster sharing of information**

This became dominant among the respondents. They indicated that the integration of ICT enhances quick receipt of information and dissemination of information thus making information sharing an effective activity. They were quick to state that the use of ICT, saves time and energy of having to go through many books to get information. Some of the responses are expanded on below;

*L10: “ ICT help in easy receipt and transfer of information. For example, anytime you need any information, you can use these ICT tools and services to research any kind of information. Through the same media, you can also transfer this information the same way” (CUC)*

*FDG13 “The main reason why I use ICT tools and services is that it helps in quick receipt of information. If you need any information about a particular course, topic, or whatever, these tools and services can help you quickly get such information. Also, you can share and get the views of other people using these tools and services”.*

*FGD15 “Just to add to what my brother just said, sometimes our lecturers send us information through these tools and services*

*FDG 22 “Yes, ICT tools and services are very important one main advantage is that you don’t need to struggle for information. You can sit in the room and get information to do your assignment, have group discussions, and also get whatever information you need. ICT tools and services are very important for information sharing”.*

It became clear from the responses from both lecturers and students that the integration of ICT in the teaching and learning of accounting facilitates the exchange of information among the students and their lecturers and the students themselves and this enhances the teaching and learning of accounting

#### 4.3.2 Promotion of active and collaborative learning

The respondents also indicated how ICT promoted effective understanding of accounting lessons and also allowed them to learn in groups. Respondents explained that the integration of ICT in the teaching and learning of accounting promotes active and collaborative learning of accounting concepts, ideas, and formulations. Their views on this are seen in the narratives below;

*FGD 72: “ICT tools and services promote effective understanding because there is full concentration in class. You can also use these tools and services to download materials (learning) that will help in understanding certain concepts that were not clear in class”.*

*FGD 68: Yes, one advantage is that with the ICT tools and services, learning becomes easy. For example, the use of some classroom software facilitates the learning of taxation and cash flow statements in financial accounting.*

*L 20. “ICT – supported learning provides accounting students the opportunity to work with people from different cultures thereby enhancing student’s communication skills” (BTU)*

*L 18 “I think the effective use of ICT in the teaching and learning of accounting provides the platform for students’ inquiry, analysis, and construction of new information. Students, therefore, learn as they do and work on real-life problems in–depth and this makes learning less abstract”.” (VVU)*

The integration of ICT in accounting makes learning active and improves the understanding of accounting concepts as well as improving the communication skills of students as evidenced by the responses of lecturers and students above.

#### 4.3.3 Promotion of effective teaching

The promotion of teaching and learning was one key motivation for why lecturers integrate ICT in their teaching. According to the lectures, the integration of ICT tools and services enhances interaction in class, enhances students’ concentration in class, and makes delivering faster and easy. The responses are seen below;

*L15: ICT tools and services create a dynamic classroom environment when used effectively making teaching and learning interesting. Our students these days are digital natives and so to*

*help them learn effectively, we as lecturers need to tailor our lessons and teaching to suit them so making good use of various ICT tools and services is the best way to go. Such tools and services make the class more interactive and enhance student participation and involvement in the lesson. So in the end, effective learning is achieved.”(ATU)*

*L1 “I think ICT tools and services promote effective teaching. For instance, when you use ICT tools and services in your teaching, it allows the students more freedom in taking initiatives, learn on their own, and be more creative. This promotes students learning” (UG)*

*L 22 “when ICT is employed in the teaching of accounting, it promotes a thematic, integrative approach to teaching thereby eliminating the artificial separation between theory and practice, and this aids the understanding of accounting procedures, formulations, and logic” (ATU)*

*L 10 “ICT support teaching is usually student –Centre and diagnostic. When ICT is integrated into the teaching and learning of accounting, it allows accounting students to explore and discover emerging issues in the accounting profession rather than merely listen and remember.”(CUC)*

ICT integration in the teaching and learning of accounting, therefore, facilitates the visualisation of accounting concepts, formulas, and procedures and this promotes students’ participation and understanding of accounting lessons as captured by the views of the lecturers above.

#### **4.3.4 Breaching the distance and promoting students’ enrolment**

One interesting response from students and lecturers was the fact that ICT breach the distance gap between them. They indicated that ICT tools and services enhance effective distance learning of accounting courses.

This is seen in their narratives;

*FGD 29 “ICT tools and services help us a lot when it comes to distance learning. For example, let me say that during the Covid-19, what we were doing was distance learning it was through the use of ICT tools and services that enabled us to do that”*

*FDG 31 “With the help of ICT tools and services, you don’t even need to be physically present for a lesson you can even have lecturer’s whiles travelling in a car or anywhere. For example, sometimes when we have group discussions and we cannot all be physically present, what we do*

*is that, the group leader will create a zoom meeting link and share it with us. So, when the time is up, you connect and have discussions anywhere you are. It is always fine.*

The promotion of student enrolment through distance learning was also cited as being the motivating factor for the integration of ICT tools and services in the teaching and learning of accounting. Some of the reports are seen below;

*L3: “The use of technological tools and services can have the potential of increasing student enrolment in that these tools enhance and promote distance learning. Sometimes what limits our intake is the classrooms and the necessary infrastructure for these students. So, since the use of ICT tools and services can enable students to learn without even physical contact with their lecturers, then I think such tools and resources can help increase accounting students’ intake because classroom space will no longer be a problem.” (UPS)*

*L11: Yes, I think ICT tools and service breach the gap between us and our students. Wherever they are, we can have lectures so once the physical presence of the students is not a necessity then I think we can increase the student’s enrolment by taking more students. I think that is one reason why most universities are now encouraging the use of these ICT tools and services in teaching (VVU)*

It is evident from the narratives above that the integration of ICT in the teaching and learning of accounting courses promotes distance learning and consequently increases the intake of accounting students thereby offering opportunities to students who would not have obtained admission to pursue accounting.

#### **4.3.5 Effective assessment of students**

Respondents also indicated that the use of ICT in accounting helps in the easy and efficient assessment of students. They explained that ICT could be used to assess students in the form of quizzes, examinations, and the tracking of student performance. The narratives are presented below;

*FGD 33 “Lecturers use technological tools and services to conduct their quizzes online. You only need to log in to the system with your identity number to access the questions. You do not need to even go to the lecture hall to undertake the quiz. I think this makes it easy and flexible for us”*

*L 14 “With the use of ICT, it makes the assessment of students less demanding. Virtual learning Environment has certain components that can be used to track students’ performance and also conduct both quizzes and examinations with less difficulty”. (CUC)*

*L 1 “When ICT is used in the assessment process, it saves time and promotes fair assessment of students in that sometimes when the students are done answering the questions the marks are displayed immediately, especially the objectives test” (UPS)*

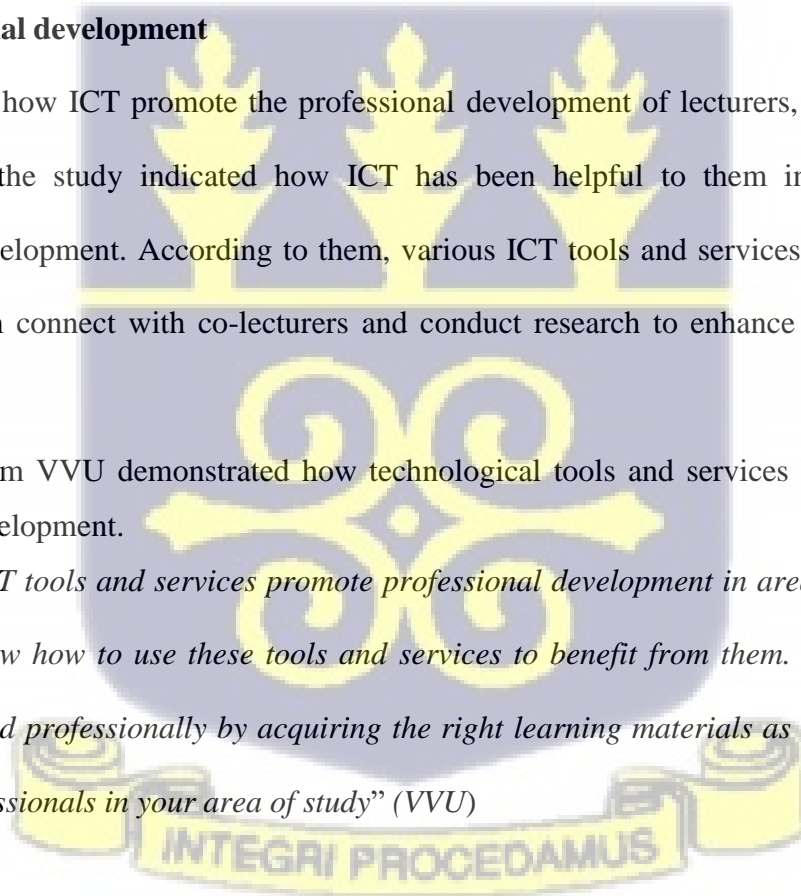
Accounting lecturers also integrate ICT not only for teaching but also to assess students. This is evident from the narrations above.

#### **4.3.6 Professional development**

With regards to how ICT promote the professional development of lecturers, the lecturers who participated in the study indicated how ICT has been helpful to them in promoting their professional development. According to them, various ICT tools and services such as Research Gate helps them connect with co-lecturers and conduct research to enhance their professional development.

One lecturer from VVU demonstrated how technological tools and services helped him in his professional development.

*L9: Actually, ICT tools and services promote professional development in areas of research but you need to know how to use these tools and services to benefit from them. You can progress academically and professionally by acquiring the right learning materials as well as linking up with other professionals in your area of study” (VVU)*



From the response emanating from above it is implicit that apart from the academic work in which accounting lecturers integrate ICT in teaching, lecturers also integrate various technological tools and services to enhance their personal development.

#### **4.4 How ICT is Integrated into the Teaching and Learning of Accounting**

Students and lecturers were asked about the various technological tools and services they are aware and how these technological tools and services are integrated to facilitate the teaching and learning of accounting. Participants demonstrated their awareness of various technologies. They mentioned several technological tools and services such as Virtual Learning Objects, Virtual Learning Environments, Virtual Classroom Soft wares, Mobile phones, and other ICT services. Their responses also explained that the use of a technological tool is based on the ability, interest, and experience of the usage of the technological tool and services. The following are some of the responses from the focus group discussion and the interviews conducted indicating the breakdown of how the various technological tools and services are integrated with the teaching and learning of accounting.

##### **4.4.1 Tutorials and group discussion**

Some students reported that they used Virtual Learning Environment for their group discussions and during tutorial sessions to solve tutorial questions in public sector accounting and management accounting. They explained that the use of a Virtual Learning Environment enhances effective participation and helps them to learn.

*FGD18, " Anytime our lecturers give us an assignment in management accounting and public sector accounting, we use Virtual Learning Environment to facilitate the discussions. This Virtual Learning Environment contains components that help in understanding the concepts better"*

*FGD 33 “Actually we sometimes use classroom soft wares to solve financial reporting tutorials. The teaching assistants use this software to carry out tutorials on issues that we do not understand during the usual lecture time.”*

*FGD 42 “we also use WEBLERN as a learning software to solve cash flow statements in financial accounting during our group discussions to supplement what is been discussed during the lecture time. This helps us to understand everything before our examinations.”*

The students integrate ICT in their studies since certain software is embedded in ICT tools and services that makes them solve taxations and cash flow statements questions in financial reporting and understand accounting concepts in general. This is evidenced by their responses above.

#### **4.4.2 Solving assignments, trial questions, and learning**

The respondents demonstrated how they integrate ICT services to get materials to solve their assignments in accounting courses such as financial reporting and sometimes on their learning. They also explained how they integrate ICT services for their tutorials and personal learning. Their responses are seen below;

*FGD 11 “Anytime we are given assignments, especially financial reporting, we use Virtual Learning Environment to help understand key concepts relating to the area of the assignments, we watch them and make meaning out of them and that helps us understand and do our assignments”.*

*FGD 13 “Yes, the Virtual Learning Environment gives us get a lot of information and helps us understand areas that are not well grasped during the main lecture session.”*

*FGD 6 “As accounting students, we get a lot of learning materials and videos to support the lecture notes our lecturers give us, especially through the Virtual Learning Environment because accounting is not an easy subject.”*

The integration of ICT in accounting enabled personalized learning activities as there is vast information provided by the internet. Accounting students, therefore, integrate ICT in various

learning activities such as assignments, trial questions, and personal learning as evidenced by their responses above.

#### 4.4.3 Teaching and student learning

Some of the students also indicated that they use Virtual Learning Environments for various learning activities. The components of a Virtual Learning Environment include outline support for both teacher and student and electronic communication. Students indicated that accounting questions can be solved with the use of these Virtual Learning environments. Their responses are expanded below;

*FDG68: "I use Virtual Learning Environment to solve cost accounting questions on product costing and budget preparation because it has outline support for students and this helps in understanding the logic behind the questions"*

*FGD70 "Virtual Learning Environment helps in online group discussions and tutorials on accounting courses. The accounting formulas are easily understood because VLE has components that facilitate outline support for both student and teacher."*

*FGD71: I use Virtual Learning Environment to always track the accounting curriculum and helps in understanding the direction of where we are and where we are going".*

Some lecturers also demonstrated how they use technologies to improve the teaching and learning of accounting. Lecturers demonstrated how they integrate their pedagogy with virtual learning objects to facilitate the clarification of concepts on accounting and the presentation of financial analysis.

*L11 "I integrate my teaching of accounting with Virtual Learning Objects so that students can visualise and conceptualise accounting formulas, logic, concepts, and procedures. It makes the class interesting and participatory (UG).*

*L10 "I integrate virtual classroom software teaching accounting because it has a lot of practical and conceptual components than theories and this makes my students smart" (VVU)*

Virtual aids of ICT assist in the teaching and learning of concepts and events in accounting through simulations and modeling which would have been difficult using the traditional approach to teaching and learning. This is ascertained by the views of students and lecturers above.

#### 4.4.4 Clarification of concepts

Some of the lecturers interviewed also explained that they download videos from YouTube on various topics learned in class. This was done to clarify concepts for students understanding of accounting topics that were not understood in class.

L5: *“I use Virtual Learning Objects to clarify concepts for students on certain accounting courses that would have been abstract. The videos help students to understand concepts that are not clear”* (UPS)

L9: *“I download videos from YouTube a lot for my teaching. I always want my students to have the visual feel of my teaching (ATU)”*

L7: *“Sometimes when students are not understanding the topic, I use the Virtual Learning Objects. I also do send these videos of my lessons in advance to them. I do all these because advanced managerial accounting is a bit technical and a lot of students have difficulty in understanding it (CUC)”*

The integration of ICT in accounting reduces abstractions and clarifies accounting concepts and events due to the visual effects provided by ICT and this is seen from the narratives of the lecturers above.

#### 4.4.5 Referring students to learning materials and quizzes

Lecturers interviewed also described how they use ICT tools and services to refer students to learning materials. Lecturers indicated that ICT tools and services make their work easier because the students are referred to learning materials online which the students get themselves prepared before their lecture time. Their responses are expanded below;

L2 *“Usually I use Virtual Learning Environment to refer my students to learning materials. Anytime I finish teaching, I upload my presentation slides in the form of PowerPoint slides online for my students. I first create a Google account and upload the materials on YouTube to the students (BTU).”*

L4 “Actually, I put my tutorial questions on my student’s emails and communicate this to them. They will then download them and practice for a deeper understanding of the lesson that is being taught (VVU)”.

L5 “I always use Virtual Learning Environment/Learning management systems to track my students’ performance in accounting on their quizzes, assignments, and examination. Also, with the use of the Virtual Learning Environment, it is always easy to publish quizzes on-line for the students to answer and when they are done answering the questions, their marks are graded automatically so each student gets to know the marks immediately (CUC)”.

The various narratives from students and lecturers indicate that ICT integration in accounting promotes deep learning of accounting and also develops the ICT skills of students thereby making students ICT savvy and functional in the wider society.

#### **4.5 Context Which Technological Tools and Services are Useful**

The researcher also had discussions with students and interviewed lecturers as to the context; they find technologies useful. The responses are presented below based on the following themes;

##### **4.5.1 Project Work/Research**

This is one major area respondents find technological tools very useful. They explained that they use various technological tools and services to aid in carrying out their project work. Respondents also indicated how they used ICT tools and services to carry out various research activities. The responses are expanded below;

FDG 4 “I use ICT tools and services when it comes to my project work. As final year students, we have been given a project work to work in groups of three and it is compulsory as part of the qualification to complete the school, you cannot do this without using one technological tool or another”.

*FDG6 “ Just to add to what my brother just said, these days is a computer era so we cannot use the manual way of doing the project because the manual way is very tiresome.*

*FDG 8: “I will say ICT tools and services are used in every aspect of the project work. Starting from searching for the topic, learning materials on the project work and to saving these learning materials, and finally writing the project work”.*

From the narratives of students, it is clear that the integration of ICT in accounting aids accounting students undertake their research and project work activities with ease due to the vastness of information provided by these technologies for them to make references to.

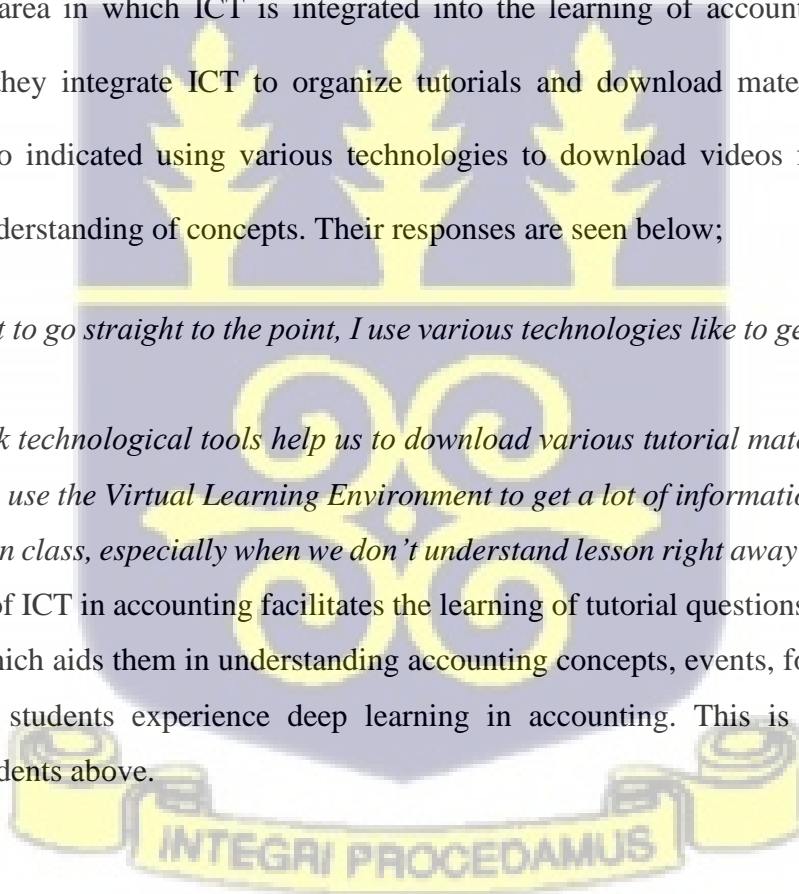
#### **4.5.2 Tutorials**

This is another area in which ICT is integrated into the learning of accounting. Respondents explained how they integrate ICT to organize tutorials and download materials respectively. Respondents also indicated using various technologies to download videos from YouTube to enhance their understanding of concepts. Their responses are seen below;

*FDG 14: “I want to go straight to the point, I use various technologies like to get materials for my tutorials”.*

*FDG 72: “I think technological tools help us to download various tutorial materials to argument our learning. We use the Virtual Learning Environment to get a lot of information to support what we are learning in class, especially when we don’t understand lesson right away from the classes”.*

The integration of ICT in accounting facilitates the learning of tutorial questions on various topics in accounting which aids them in understanding accounting concepts, events, formulas, and logic thereby making students experience deep learning in accounting. This is indicative of the narratives by students above.



#### 4.5.3 Group discussions and group presentation

Hosting zoom cloud meetings for group discussions and group presentations is another key area in which respondents see ICT tools and services as most useful. They explained using technologies to undertake group discussions and presentations. This is expanded below;

*FGD 40 “I use technological tools to search for materials before our group discussions and that makes it possible for me to also contribute during the discussions. I always go to the internet, research similar issues concerning the topic in question, and understand the topic before our group discussion time”*

*FDG 41 “ I use slide share as a technological tool to download slides, study how it is done, and incorporate it on my own to prepare my slides anytime we have group presentations.”*

*FDG 37 “ Anytime we are given assignments to be presented in a group what I do is that I use classroom Soft wares to do my research on it and helps a lot in getting the problem to solve”*

*FDG 38 “ I can remember very well, in my third year when we were first asked to do a presentation on one topic on public sector accounting. I had no idea about how to do the presentation. So I went online and Google how to do it. I receive a lot of tutorials on it and I was able to prepare my slides for the presentation and it went well for me”*

It is also clear that through ICT integration in accounting, students can perform various accounting assignments, discussions, and academic activities easily and with less effort thereby saving time and making learning interesting.

#### 4.5.4 Group discussion and one-to-one interaction

Some lecturers also indicated how they use various technological tools for group discussion and one-to-one interaction with students.

*L8: “During the heat of COVID-19, I employ a lot of ICT tools and services in my teaching to have a group discussion with my students and also one-to-one interaction. I use technology like zoom-cloud-meeting to have a group meetings with students. I download and install the application and ask the students to do the same. I then create the link and share it among the students through their What Sapp or their respective emails. So when it is time, the students*

*connect with their laptops or mobile phones and it was lovely. Even now, most of my discussions with students are still done using this technology (ATU)”.*

ICT integration in accounting aided some lecturers to carry out their teaching online without having to meet the students physically and this was more pronounced during the period of COVID-19 as captured by some of the lecturers above.

#### **4.5.5 Research and personal development**

Lecturers also interviewed shared their views on how they use technologies for their research and academic progression.

*L9: “I write articles and publish them using one technological tool and another.”(UG)*

When I probed further, about the kind of technological tools he used. He stated that they are many and he cannot even exhaust them when he is to name all the technological tools within a day.

*L9 “Actually, I cannot mention all the technologies but just say a few of them, research gate, the internet, YouTube, etc.*

*L7 “I use technological tools for research of instructional materials to stay current with current development in my profession. So my materials are always up-to-date and again for my academic development, I use technologies for research (UPS) “.*

It is clear from the narratives of students and lecturers that ICT play a critical role in their academic and professional development.

#### **4.6 Frequency of ICT Integration**

This was examined in terms of the frequency of use by students and lecturers. Respondents exhibited different opinions. Whiles some explained that they integrate ICT tools more frequently; others showed that they do not use ICT more often and some also indicated that they do not integrate ICT at all.

*FGD 25: “Yes, I use ICT tools and services all the time for my studies so to me I use ICT often in my studies as an accounting student.”*

*FGD 27 “I think, ICT is the order of the day so I use ICT in my studies more often. These days you cannot do anything with regards to academics without the internet.”*

*FGD 31 “I will say no because, in this institution, we don’t even have the ICT resources to help us even learn. Although we use ICT in our studies it is not all the time.*

*FGD 34: “I can say that I only make use of ICT if and only if I am given an assignment that I need to submit either through email or our e-learning platform. The simple reason is that I don’t even know how to use ICT.*

Lecturers interviewed also demonstrated that they integrate ICT tools and services often when it comes to teaching activities such as the delivery of content and assessment of students. However, some lecturers reported that they do not integrate these tools often in their teaching. Such lecturers who do not integrate ICT tools and services in their teaching explained that some of the students are coming from poor homes and as such cannot afford computers or smart phones so to be fair to everybody; they have to avoid using ICT tools and services. The responses from the lecturers are seen below;

*L7 “Very often, I integrate ICT tools and services in my teaching. Usually, I ask my students to go online and download videos from YouTube, concerning the topic I will be treated with them, I entreat them to watch the videos and prepare before I meet them and it has been good. I do it often and after teaching too I record the videos and send it to them again” (UG)*

*L2; “Yes I integrate ICT tools and services in my teaching often. All my quizzes and assignments are done online and submitted online respectively (CUC)*

*L8: “I will say not often but I do sometimes. Most of the students cannot afford better phones or computers so I employ the traditional method of teaching to serve everybody ,sometimes I do use these tools but as I said, it is not often like that (BTU)”.*

From the responses from the students and lecturers, it is indicative that the frequency at which ICT is integrated into the teaching and learning of accounting depends on the ability to use the technological tool and the resources to acquire the necessary technological tools to support ICT-based teaching and learning.

#### **4.7. Challenges of ICT Integration**

Respondents admitted facing challenges when integrating ICT into accounting education. The challenges identified by respondents included the following; high cost of computers and other technologies, internet connection failures, diversion of attention, lack of software training on ICT usage, and inadequate computer laboratories.

##### **4.7.1 High cost of computers and other technologies**

This was identified by students and lecturers to be the major challenge preventing the successful integration of ICT in accounting education. The respondents explained that it is costly to acquire the necessary technologies to support IT-based teaching and this is a major drawback. Their responses are seen below;

*FGD 28 “I think the major challenge is the cost of acquiring the right technologies. Most of us are coming from poor homes and do not have the money to purchase these computers and this is a challenge for us. The ICT labs too are inadequate due to our number.”*

*FGD 31 “I think I agree with what the first speaker just said. We don’t have the technologies and the university is not also helping us because there are few computers in the laboratory and you cannot even take them home. So most of us come to the lecture hall with no computer on our own”.*

*L8” I think the major challenge is our student inability to have their computers due to inadequate financial resources. For instance, I have stopped using ICT in my teaching because I doesn’t want to disadvantage any student. You cannot also force them to buy the computer because they don’t have the financial resources (CUC)”*

From the responses above it can be deduced that if students could afford technological tools or if these tools could be provided by universities it will aid in the integration of ICT in the teaching and learning of accounting.

#### **4.7.2. Internet connectivity failures**

Respondents also complained about the internet connectivity as a challenge to their successful integration of ICT in their teaching and learning. They complained that the internet connectivity is not always reliable and that poses a lot of challenges to them. Their Responses are seen below;

*L12” In fact, we always have issues with reliable internet connection. Without a strong internet connection too, it becomes difficult if not impossible to integrate ICT in your teaching and the student side too, I think it will also be difficult for them to use the internet to search for relevant information (BTU)”*

*FGD 55 “The internet connection is always our problem. There was a day our madam wanted to demonstrate something like that and wanted a video to support the explanation. It took her more than 45minust to get the video and this wasted instructional time and made class boring. The internet connection is usually frustrating here.”*

*FGD 57; Yes, it is also expensive to buy the bundle and without enough bundle, the connectivity will not be strong to help us to do whatever we want to do.*

The responses show that lack of reliable internet connectivity affects the efficient and effective integration of ICT in accounting education and causes delays in the teaching and learning of accounting leading to students' bore down.

#### **4.7.3 Diversion of attention**

Another challenge catalogued by respondents was the fact that the integration of ICT may sometimes divert one's attention from the actual intended purposes. Some lecturers explained that instead of students using the ICT services for their educational purposes, they sometimes deviate from this to their interests not relating to academic purposes and that is a challenge. The responses below affirmed this assertion.

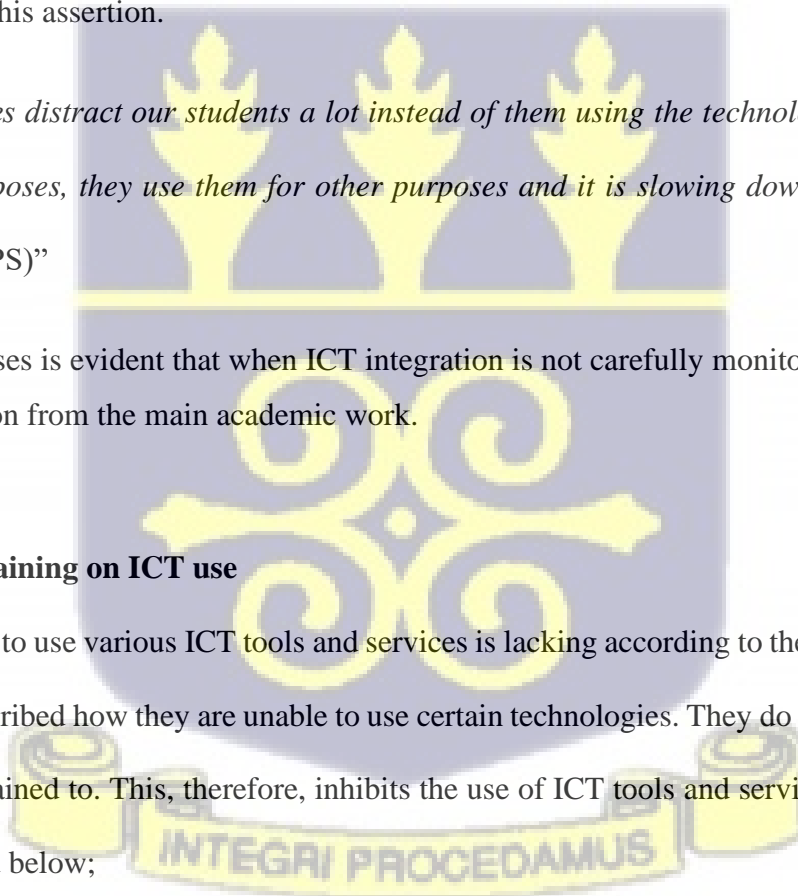
*L9 "Technologies distract our students a lot instead of them using the technologies for the right educational purposes, they use them for other purposes and it is slowing down our educational development (UPS)"*

From the responses is evident that when ICT integration is not carefully monitored, it diverts students' attention from the main academic work.

#### **4.7.4 Lack of training on ICT use**

Training on how to use various ICT tools and services is lacking according to the respondents. The respondents described how they are unable to use certain technologies. They do not know and they have not been trained to. This, therefore, inhibits the use of ICT tools and services in accounting.

This is expanded below;



*FGD33 “Our problem too is the training on how to use these ICT technologies. I can even say that in our senior high school it is even better because you will go to the lab and they will teach you how to operate some of these technologies but here not at all. so we are finding it difficult here.”*

*H1" There should be regular training on how to use these technologies for lecturers and students. The reason is that if lecturers cannot use these technologies, then it simply means that they cannot integrate them into their teaching. I think regular training should be for both the students and the lecturers (BTU)”*

The lack of technical assistants to aid accounting students and lecturers in the use of ICT accounts for the inability of the respondents to effectively integrate ICT in the teaching and learning of accounting.

#### **4.7.5 Inadequate computer laboratories for student access**

One of the most important factors respondents also explained was the fact that there is a need for the various universities to have adequate computer laboratories for all students especially those who cannot afford their computers. They explained that there are woefully inadequate ICT labs. Their responses are seen below;

*H4; “One way out to solve the problem is to build, expand, and equip our computer labs with the necessary computers and gadgets that support ICT-based teaching and learning. When this is done, it will ensure the computers are available to all students and at all times” (VVU)*

*H6 “The best way is to equip the existing lab, regularly maintained the existing computers, improve upon our broadband and even build more labs so that every student can benefit” (UPS)*

*L3 "Yes the current computer labs are woefully inadequate and it is a major challenge to our teaching and learning process” (BTU)*

The above responses demonstrate that the inadequate computer laboratories to facilitate the integration of ICT in the teaching and learning of accounting is common to all the institutions studied.

#### **4.8. Teaching Approaches for ICT Integration**

This section seeks to find out from the lecturers the teaching methodologies when integrating ICT into their teaching and whether or not their teaching style will change when integrating ICT. This is presented under the following themes.

##### **4.8.1 The use of the lecture/ traditional method**

Lecturers argued that the traditional lecture method is still useful when integrating ICT into accounting. They opined that accounting as an academic discipline is technical and as such need to be approached from such perspective. They explained that the traditional lecture method best suit the technical aspect of accounting thereby exposing students to its technical aspects. However, they agree that the traditional lecture method is rigid. Their narratives support this claim.

*L7: “The lecture method is still useful because accounting is not like any other course. It is so technical and students need to grasp its technical aspects the traditional lecture method has proven over the years to solve this problem. So, whether you are integrating ICT or not, it is still useful.”*  
(CUC)

*L9: “I still use the lecture method although it is to some extent rigidly I integrate ICT too in my teaching. The skills in ICT are good but not our primary focus as accounting instructors so I have to use the lecture method to carefully deliver the content and expose the students to all the technicalities in the subject (ATU)”*

From the responses, the traditional teaching method although rigid is advantageous in exposing students to the technical knowledge of accounting.

#### 4.8.2 Other innovative methods of teaching

Some lecturers also argued that even though, the traditional lecture method is extensively used in accounting education, there is still a need to be innovative and to devise other flexible means of delivering the content as the traditional lecture method lacks flexibility. Their argument was based on the fact that Accounting and ICT are two separate disciplines and to succeed in the integration of ICT in accounting, then one needs to be innovative and flexible in the teaching approach. They, therefore, advanced other innovative teaching methods such as the case study method, problem - based learning, experiential and activity learning, and seminar presentations.

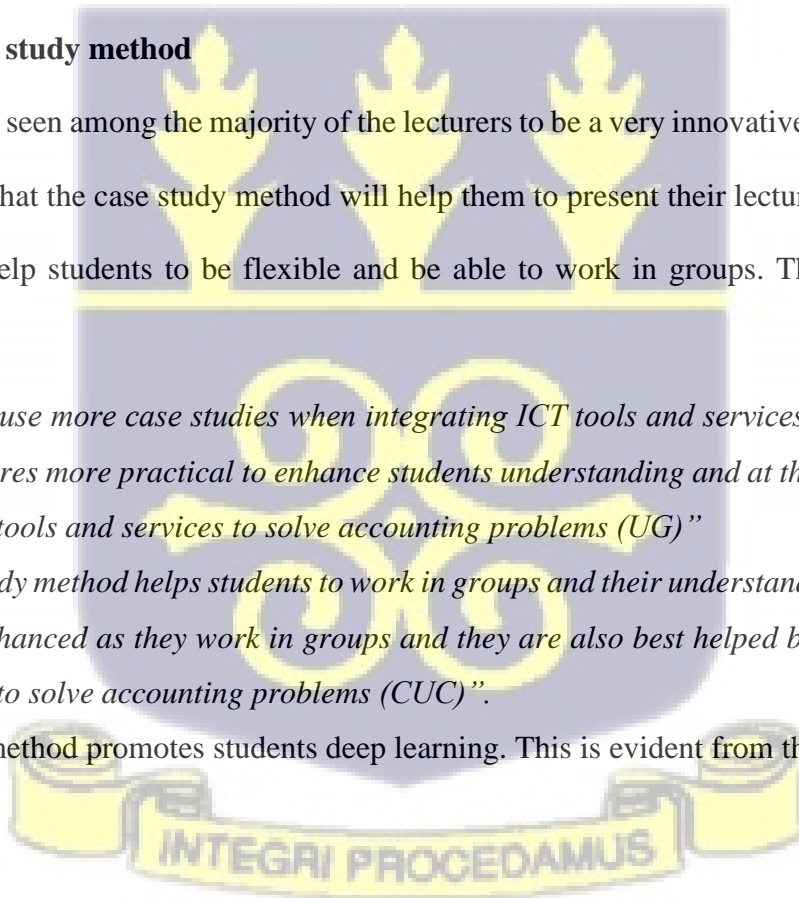
##### 4.8.2.1 The case study method

This method was seen among the majority of the lecturers to be a very innovative teaching method. They explained that the case study method will help them to present their lectures practically and the same time help students to be flexible and be able to work in groups. Their responses are expanded below;

*L8: "We should use more case studies when integrating ICT tools and services. This will help in making our lectures more practical to enhance students understanding and at the same time allow them to use ICT tools and services to solve accounting problems (UG)"*

*H3" The case study method helps students to work in groups and their understanding of accounting issues will be enhanced as they work in groups and they are also best helped by their colleagues to use ICT tools to solve accounting problems (CUC)".*

The case study method promotes students deep learning. This is evident from the responses above.



#### 4.8.2.2 The problem-based learning method

Some lecturers also cited the problem-based learning method as one of the innovative teaching methods when integrating ICT into accounting. According to the lecturers, Problem-based-learning involves confronting students with problems from practice which serves as a stimulus for learning. It makes students think critically and analytically and enhances their skills to develop problem-solving skills. Some of the responses are seen below;

*L10: “I usually use problem-based-learning and experiential learning methods where I present projects to my students to work in the group. This helps them to learn in groups and also improve collaborative learning (BTU) “.*

*L9 “The Problem-based-learning involves presenting students with problems from practice which serves as a stimulus for learning. When integrating ICT, it is very important to use this method because the students will learn to use ICT tools to solve practical accounting problems (VVU)”.*

The responses clearly indicate that the problem-based learning method promotes collaborative learning among students and lecturers.

#### 4.8.2.3 Experiential and activity-based learning

This is another innovative method cited. They explained this approach as active learning where students learn by action through exercises given to them by their instructors. They added that the teaching and learning of accounting by its nature requires action as the subject is best learned by constant practices through an engagement in activities. Their responses are given below;

*L8 “The experiential and Activity Based Learning method is the best. With this method, students are given a lot of activities to practice and by so doing they learn more from friends informally (UG)”.*

L12 “With the experiential and Activity Based Learning method, the main advantage is that it inculcates in the students the spirit of teamwork and aroused their interest to develop basic reasoning capabilities (UPS)”.

The constant practice of accounting problems through a series of activities enhances students' understanding of accounting practices and procedures.

#### 4.8.2.4 Seminar presentations

Some lecturers also mentioned presentations as other alternative teaching methods to supplement the traditional lecture method. This is expanded below;

*L4: Well, you cannot ignore the formal lecture method completely but other methods like engaging the students to do presentations with these ICT tools and services before their colleagues I think is the best compliment that will also provide the opportunity for the students to better interact with these tools and services while learning the technical aspect of the accounting” (ATU)*

Students’ presentations enable them to develop critical thinking skills and improve upon their communication skills and this facilitates the understanding of accounting as they interact with these tools.

#### 4.9 Discussion of Findings

This section discusses the findings of the study in line with the study objectives.

##### 4.9.1 Motivation for ICT integration.

The findings demonstrated various reasons why ICT is integrated into the teaching and learning of accounting. In the first place, ICT was found to attract students’ attention in class and the same

time help lecturers and students search for relevant study materials to facilitate the delivery of content and improve the teaching and learning process. This finding is in line with Sam and Indra (2010) that the integration of ICT in teaching and learning accounting allows for more time and space flexibility for lecturers and students to use educational materials. It was found that students and lecturers learn both formally and informally through the use of various ICT tools and services. This finding is in accord with Dabbagh and Kitsantas' (2011) finding that states that students learn better in a more informal environment.

Again, it was also found that ICT tools and services enable interaction among students themselves, lecturers, and students-lecturers interaction. This facilitates the clarification of concepts even outside the classroom for better understanding and deep learning of accounting. This finding affirms Boyce, Carnegie, Lourens, and Bigelow (1995) cited in Sam and Indra (2010) that the integration of ICT in accounting education substantially contributes to the development of technical competencies and allows greater emphasis to be placed upon accounting concepts, issues, and ideas within the classroom. The finding again collaborates with McCourt et al. (2000) cited in Sam and Indra (2010) that the use of ICT enables and promotes students understanding of practical aspects by facilitating repetition of practical examples in an interactive environment and increases their prosperity for autonomous study.

Regarding communication, it was found that ICT tools and services help both students and their lecturers to communicate and share information. Lecturers can communicate various academic activities such as the announcement of quiz time, lecture times, change of venue for lectures, assignment submission dates, and many others through ICT tools and services. Students on the other hand disseminate information among their peers and lecturers also using various ICT tools and services. This helps in developing the soft skills of students and making them ICT savvy

enabling them competitive in the external environment. This confirms Edmund et al (2012) finding that educational institutions are aggressively integrating ICT into their systems because they desire to stay competitive.

Another finding that this study revealed was that ICT tools and services promote collaborative learning among students and their lecturers. As a critic by Prensky (2010) and Shaw (2014) that the traditional system of learning which involves telling and testing is not a suitable approach to learning, learning should be a shared responsibility between the teacher and his students where the teacher only serves as a guide to knowledge construction. ICT tools and services were found to promote collaborative learning where lecturers and students share ideas which helps them add to existing knowledge. This finding is consistent with the constructivism learning theory which warns instructors not to be autocratic and be seen as sovereign entities but should be democratic respecting the views of students and guiding students to produce their knowledge. An interesting finding that also emerged was the fact that ICT tools and services promote distance learning and reduce the cost of travelling among students. The findings indicated that due to ICT and technological advancement, teaching and learning can take place at any place and are flexible enough for both students and their instructors. Learners and lecturers can sit in the comfort of their homes and have lectures. This prevents the hustle of struggling for classroom space. This finding is affirmed by Friedman and Friedman (2013) that ICT tools and services promote and bridge the distance between students and their lecturers. The present study found that through the usage of ICT tools and services, distance learners (accounting) can create networks among themselves and their lecturers which makes teaching and learning joyful.

It was also found that ICT tools and services enable students and lecturers to easily search for information thereby satisfying their quest for new knowledge. As put by Shaw (2014) that the

present generation desire to be current and always source for various knowledge from various sources to satisfy this desire, the use of ICT tools and services solves this problem amicably by providing various sources where students can get information and also providing lecturers with various avenues to get information that will enable them to be at par with their students. This, therefore, enables both students and the lecturer to achieve the needed learning outcomes.

It was also found that the integration of ICT in accounting enabled students and lecturers to undertake assessment activities such as quizzes, examinations, and assignments. This finding explains further the finding of Babalola and Tiamiyu (2012) that ICT allows for continuous testing of students of the content of materials and allows the students more freedom in taking initiative, learning on their own, being more creative, and individually studying at their own pace.

Finally, it was found that apart from academic purposes, the relevance of ICT tools and services goes beyond the classroom setting to promote the social and interpersonal relationship between students and their lecturers. Lecturers revealed how ICT tools and services have been useful in their research publications for their professional development. The findings indicated that the integration of ICT tools and services in the teaching of accounting goes beyond using ICT tools and services to teach or learn accounting courses to include any activity that will enhance the skills of the accounting graduate.

#### **4.9.2.1 How ICT is Integrated into Accounting Education**

The findings showed that students integrate various ICT tools and services to have tutorials, and group discussions on topics and tasks that need collective efforts to get the work done. This study also revealed that sometimes students use technological tools and services to create cloud zoom meetings to have lectures with their lecturers. Another finding was the fact that the students can

connect with these tools for clarification of issues outside the classroom without physically meeting their lecturers. This finding is consistent with Friedman and Friedman (2013) finding that when ICT tools are carefully employed in the teaching and learning process, it bridges the gap between students and their instructors in terms of distance. It was again found that students also use ICT tools and services to undertake assignment activities such as the writing of quizzes, the submission of assignments, and the discussing of Forum questions.

About how lecturers integrate ICT tools and services into their teaching. The findings are similar to that of the students. The findings indicated that lecturers use various technological tools to engage in interaction with students, to have collaborative learning with students, undertake assessment activities, refer students to learning materials, communicate feedback to students, and also clarification of concepts for students' deep understanding. The findings also revealed that lecturers use various ICT services to download study materials for the improvement of content delivery and also to download videos to facilitate students' understanding.

The findings also showed that some lecturers incorporate ICT tools and services often in their teaching to match the needs of the current generation of students who are usually regarded as digital natives. This finding conforms with Mastrolia and Willits (2013) finding that the newest generation of accounting students are better to familiarise themselves with technologies since these newest generations learn to deal with ICT tools such as mobile phones, tablets, and personal computers from early age. The finding again confirms Mc Combs and Whither (1997) findings, which showed that students are the center of the learning process and as such instructors must tailor their teaching in line with the students to reap the needed outcomes.

One notable finding that also emerged was the fact that while some lecturers and students frequently integrate ICT tools and services in accounting, some do less frequently and in some

cases, some avoid incorporating ICT completely. The argument was that most lecturers and students do not have the needed skills and knowledge to use ICT. This finding is in line with the Technological, Pedagogical Content Knowledge Theory which argued that technology could enhance the teaching and learning process but for successful integration of technology in teaching any subject, content knowledge, pedagogical knowledge, and technological knowledge are all required. Some students were found not to have the needed ICT devices to support ICT-based-teaching and learning. This finding explained the reasons for the continuous use of the traditional lecture method by some lecturers. This finding is also consistent with Owusu-Ansah (2015) findings and Adu-Manu, Arthur, and Yeboah (2013) findings. This finding again affirms the opinions of lecturers on why they do not integrate ICT in the teaching of accounting.

#### **4.9.2.2 Context in which ICT tools and services are useful**

The findings from students revealed that the specific context in which students used ICT tools and services included among others project work, research work, group discussions, group presentations, and personal interaction among peers outside academic work. Similar findings were ascertained from the lecturers too who indicated using various technological tools and services for one to- one interaction with students, for their professional development, and uploading study materials for students to enhance students understanding of concepts. It was also clear from the findings that although both the students and lecturers used various technologies to improve the teaching and learning of accounting, the virtual learning objects, the virtual learning environment, and the classroom soft wares are commonly used. It is deductive from the findings that these tools and services are used since both the students and the lecturers know how to use these tools and services. This is in line with the Technological- Pedagogical-Content Knowledge Theory, which

stipulates that for successful integration of technology in the teaching and learning process, Technological knowledge, Pedagogical knowledge, and Content knowledge are all required.

#### **4.9.2.3 Frequency of ICT integration**

The frequency of use of a technological tool or service helps in the mastery of the use of that particular tool. The findings of the study showed that there was ICT use by some students and lecturers in terms of frequency. It was clear from the findings that students are interested in ICT-integrated teaching. Although some of the lecturers indicated applying ICT during teaching, a good number of them do not. From the findings of the study, both lecturers and students have an interest in an ICT integrated teaching and learning however currently is not mandatory and students and lecturers are integrating it at their will and less formally.

#### **4.9.3 Challenges of ICT integration**

It is crucial to indicate that notwithstanding the benefits of ICT integration in the teaching and learning of accounting which served as motivation for the integration, the respondents also demonstrated certain challenges that they encountered when integrating ICT.

They mentioned challenges such as the high cost of computers and other technologies, diversion of attention from academic work to other non-academic activities, internet connection failures, the lack of training on the use of ICT, inadequate computer laboratories, and lack of institutional policies that will ensure the compulsory integration of ICT in accounting course.

It was found that one basic challenge was the fact that it was costly to purchase modern technologies to facilitate ICT-based teaching and learning. This makes most students go to the lecture halls without the necessary technological devices. This finding collaborates with Adu-

Manu, Arthur, and Yeboah (2013) finding that although most students have one phone or the other, only a few of them possessed a smartphone.

It was also revealed from the findings that ICT technologies distract and divert students' attention from the main academic work to other social and interpersonal interactions. This finding contradicts Friedman and Friedman (2013) who found that the use of ICT technologies promotes academic work and provides visual stimulus to attract students' attention in class. This finding however confirms Mutakwe (2015) findings that students use Facebook and other social media for their interaction than their academic work.

Another interesting finding was the fact that most students and lecturers cannot use ICT technologies. This, they explained that there is no software training on the use of ICT. This finding confirms the Technological Pedagogical Content Knowledge Theory which states that for successful integration of technology into any academic programme, technological knowledge is required with the pedagogical approach and the content knowledge.

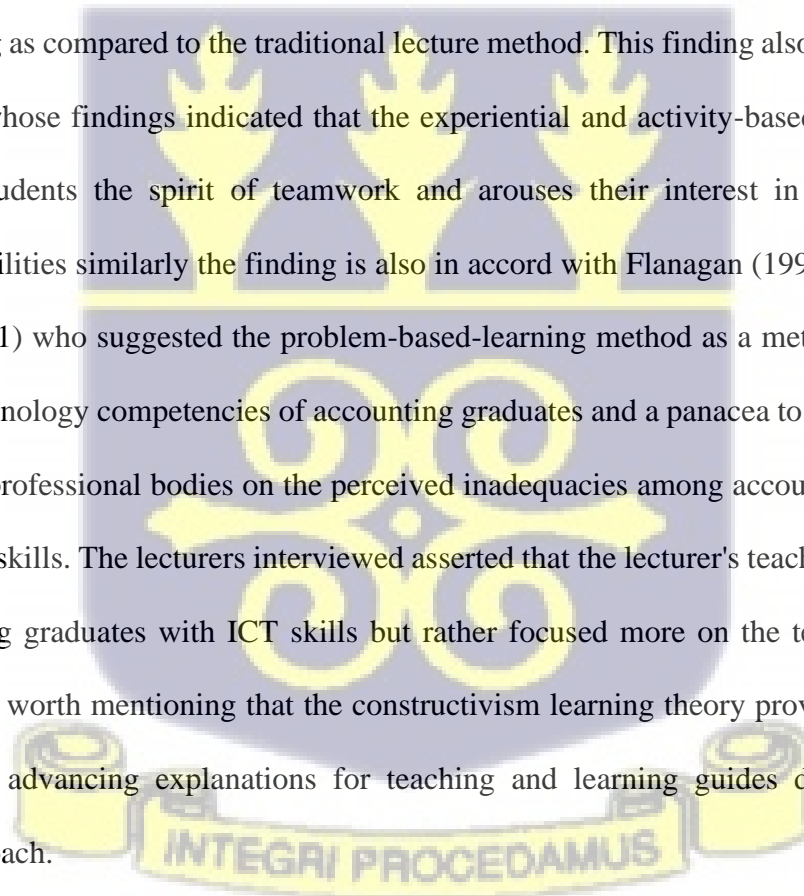
The findings also demonstrated how internet connectivity failures affected the use of ICT technologies. Participants explained that it is expensive to buy bundle to enhance strong internet connectivity and as such, they find the use of ICT very frustrating in their academic work. This finding is not unique to Ghana but almost all developing countries making the integration of ICT in their educational institutions problematic as compared to the developed countries. The finding explained further Roger (2016) assertion that there cannot be a uniform adoption of technology among countries due to the unique characteristics of individual countries. This finding is also collaborative with Bhasin (2012) that the integration of ICT in educational institutions varied among countries depending on their resources to support the integration

The present study also revealed inadequate ICT laboratories as a challenge inhibiting the integration of ICT in the teaching and learning of accounting. According to the findings, the ICT labs are not well-resourced to provide students access. This, therefore, defeats the full implementation of ICT-based teaching and learning. This finding affirms the responses from some lecturers that they do not integrate ICT in their teaching because most students do not have the technological tools themselves or are being provided by their institutions.

#### **4.9.4 Teaching Approaches for ICT Integration**

The findings that emerged showed that the traditional lecture method is still useful in accounting education. Lecturers explained that accounting is a technical subject and as such is best delivered by the lecture method whether one is integrating ICT or not. They stressed that the aim of accounting education is for accounting students to grasp the technical aspects of accounting, not ICT skills, and the lecture method had proven to achieve these results. This finding contradicts Albrecht and Sacks (2000) finding which argued that it is time for accounting education to move from the lecture method to a more advanced approach to teaching that would convey critical knowledge, skills, and abilities in accounting students. The finding is also inconsistent with Prensky (2010) and Shaw (2014) argument that the traditional system of learning which use to be “telling and testing” is no longer suitable for 21<sup>st</sup>-century students. The finding again is inconsistent with Merino (2006) finding that the technical approaches to the teaching and learning of accounting are not sufficient and cannot serve as an adequate basis for accounting education. This finding also contradicts the constructivism learning theory which encouraged lecturers to desist from the lecture approach to an approach that will enable learners to produce their knowledge. However, some lecturers posited that the traditional lecturer method is not the best

method when integrating ICT tools and services although it cannot be ignored completely. Lecturers, therefore, suggest the use of the case study method and the problem-based learning method in addition to experiential and activity-based learning methods. These methods they suggested were supported by arguments that, such methods will provide accounting students with the opportunity of using ICT tools and services to solve accounting problems. This finding is in line with Gordon (2014) that lecturers need to adopt a flexible approach when integrating technology into the teaching of any subject. The finding is also consistent with Biggs (1989) cited in Healy and Maeve (2010) who described the case study method as having the advantage of fostering students with the task of analysis and providing a motivational context of reasoning and decision-making as compared to the traditional lecture method. This finding also collaborates with Moore (2010) whose findings indicated that the experiential and activity-based learning method inculcates in students the spirit of teamwork and arouses their interest in developing basic reasoning capabilities similarly the finding is also in accord with Flanagan (1997) cited in Hussin and Manaf (2011) who suggested the problem-based-learning method as a method that develops information technology competencies of accounting graduates and a panacea to the criticism from the accounting professional bodies on the perceived inadequacies among accounting graduates in communication skills. The lecturers interviewed asserted that the lecturer's teaching style does not equip accounting graduates with ICT skills but rather focused more on the technical aspect of accounting. It is worth mentioning that the constructivism learning theory provides solutions for this finding by advancing explanations for teaching and learning guides different from the traditional approach.



#### 4.10 Chapter Summary

The chapter gives a comprehensive presentation of the findings obtained from students and lecturers from the focus group discussions and interviews respectively. As a result, the motivation for ICT integration as well as the challenges, the integration of ICT tools and services, and the teaching approaches for integrating ICT in accounting are all presented. The chapter further discussed the findings of the study and assessed the findings in light of existing literature on the subject matter of the study. The implication of the findings which agree with the elements of the two theories used demonstrated that for successful integration of ICT in the teaching and learning accounting, there need to be policies, internet connectivity, technology infrastructure, and training for ICT use. These would enable users to fully benefit from the integration.



## CHAPTER FIVE

### SUMMARY, CONCLUSION, AND RECOMMENDATION

#### 5.0 Introduction

The study seeks to explore the integration of ICT in the teaching and learning of accounting programmes in Ghana. As a result of such, the study examines why ICT is integrated into the teaching and learning of accounting and explores how ICT is integrated into the teaching and learning of accounting programmes. The study also identifies the challenges that are encountered in the use of ICT by accounting students and lecturers and examines the teaching approaches for ICT integration in accounting education. This chapter gives the key findings of the study, the implications of the findings as well as the conclusions from the findings. The chapter ends with recommendations based on the findings and the contributions of the study.

#### 5.1 Summary of Findings

##### 5.1.1 Motivations for ICT integration

The first objective of the study is to find out from the lecturers and their students why ICT is integrated into the teaching and learning of accounting. The findings of the study showed that students are motivated to use ICT tools and services since ICT tools and services help them to find relevant materials to support their studies. ICT also help students to disseminate information among themselves and their lecturers. It was also realized that ICT enhances students' attention and interaction in class thereby helping students in understanding concepts better. Apart from the foregoing motivations, students also find ICT tools and services useful even after the classroom by improving and facilitating socialization among peers. The findings from the lecturers are very

similar to that of the students. Lecturers reported that they are motivated to integrate ICT tools and services in their teaching because it promotes effective teaching and makes students active learners. It also enhances the delivery of content and enables the search for relevant course material which improves teaching and learning. ICT also enhances collaborative teaching and learning. It was also revealed that ICT tools and services promote distance education and finally lecturers advanced professionally using ICT tools and services. These findings are in line with (Selwyn and Henderson, 2017; Watty, Mckay, and Ngo, 2016; Gaviria et al, 2015; Friedman and Friedman, 2013).

### **5.1.2 How ICT is integrated in accounting education**

The results showed that students integrate ICT tools and services in their learning to undertake individual learning, group presentations, group assignments, and group project work. They also use ICT tools and services to undertake their research activities, especially group project-works. The students integrate these tools and services in various accounting courses. The findings also showed that just like the students, lecturers also integrate ICT tools and services into their teaching. Lecturers were found to use ICT tools and services to have one-to-one discussions with students and group discussions with students. Another finding was that lecturers use these tools and services for their personal and professional development by researching and publishing research articles. The results also showed that while some lecturers and students used ICT tools and services often in accounting, some do not and some simply avoid them because they do not know how to operate these tools and services. It was also realized that some lecturers do not use ICT tools and services in their teaching because they do not want to disadvantage any student. After all, most students cannot afford to buy such tools that support ICT-based teaching.

### **5.1.3 Challenges of ICT integration**

The study also identifies the various challenges that are encountered in the use of ICT by accounting students and lecturers. It was found that the high cost of computers and other technologies, diversion of attention from academic work to other non-academic activities, internet connection failures, the lack of software training on the use of ICT, and inadequate computer laboratories are some of the challenges of ICT integration in the teaching and learning accounting. Lecturers lamented how students' attention diverts to other activities than academic work when using ICT tools and services. Among the challenges, both lecturers and students agree that the lack of software training on ICT usage ranks high among the rest.

### **5.1.4 Teaching approaches for ICT integration**

Information and Communication Technology and accounting education have become recent phenomena attracting research attention from scholars. Several studies have called for the integration of ICT in the teaching and learning process warning that it is the only way an educational institution can stay competitive and be of value to society (Gaviria et al., 2015; Oliveira et al., 2013; Edmund et al, 2012; Bingimsal, 2009). Bhasin (2012) and Annasighn (2019) however argued that the integration of ICT in teaching and learning hinges heavily on the teaching methods hence the fourth objective of the study seeks to find out from the lecturers their views on the teaching approaches employed for integrating ICT in accounting.

The findings showed that the traditional lecture method although still useful needs to be complemented with other teaching methods such as case study methods, problem-based- learning methods, and experiential and activity-based learning methods as well as seminar presentations by students when integrating ICT. The findings indicated that the suggested teaching methods help

students to have a practical touch of several technological tools and services. The finding that the traditional lecture method is still useful contradicts the constructivism learning theory which sees teachers as only a guide to the learning process. This finding is also in contrast with Gordon (2014) findings that instructors need to be flexible when integrating ICT to reap the benefits associated with it.

Another finding was that a lot of lecturers interviewed agreed that their style of teaching will change when integrating ICT into accounting although a few others asserted that the change may not be significant because of the technical nature of accounting.

## **5.2 Conclusion**

Based on the findings of the study, the study concludes that information and communication technology plays a key role in the teaching and learning of accounting programmes. The study concluded that students and lecturers have knowledge of and are aware of various technological tools and services and that ICT tools and services are integrated with the teaching and learning of accounting programmes.

The study also concludes that although the institutions recognised the importance of ICT, ICT integration in the teaching and learning of accounting programmes is still minimal. The careful integration of ICT with the right teaching method will significantly improve the teaching and learning of accounting as well as facilitate the development of both lecturers and students professionally and socially.

The study concludes that ICT integration in the teaching and learning of accounting programmes in Ghana is not mandatory as lecturers and students use ICT at their will and less formally.

The study also concludes that ICT tools and services used in the institutions studied to some extent are not integrated regularly because most of the lecturers and students do not know how to operate the tools and services and neither student nor the institutions have adequate resources to purchase these ICT tools that will facilitate the integration process.

The study concludes that the availability of ICT tools and services provided by the institutions needs a lot of improvement. Finally, accounting lecturers interviewed also admitted that the lecture method although still useful need to be complemented by other innovative methods of teaching.

The study concludes that the case study method, the problem-solving-learning method as well as the experiential and activity-based learning will help students gain knowledge on the technical aspect of accounting and at the same time help, students acquired ICT skills.

### **5.3 Recommendation**

The study makes the following recommendations to ensure the successful and effective integration of ICT in the teaching and learning of accounting programmes. The recommendations are based on the findings and results of the study.

The study recommends that there is a need for software training for lecturers and students on how to use ICT tools and services. Mishra et al. (2009) argued that for the successful integration of technology into the teaching and learning process, technological knowledge is required in addition to pedagogical content knowledge. It is only when lecturers and students know how to use these tools and services that they will be able to effectively use them to enhance efficient teaching and learning.

The study also recommends that lecturers need to complement the traditional lecturer method which merely involves “telling and testing” with more constructive learning methods when

integrating technologies. Such a move will encourage students to construct their knowledge and not to be knowledge receivers. Teaching methods such as case study, problem-solving-learning, as well as experiential and activity-based learning methods, are therefore recommended for use by accounting lecturers.

The study also recommends that the use of ICT by accounting students and lecturers should be made compulsory. The heads of the various accounting departments must ensure the effective implementation of strategies to make ICT compulsory and formalise its usage in the teaching and learning of accounting.

The study also recommends that accounting institutions should invest in their ICT infrastructure both hardware and software. It is worth mentioning that ICT integration in accounting thrives on the internet and for successful integration, the institutions need to invest in their internet broadband. Again, the institutions should invest in the ICT hardware infrastructure to make them available for use since most of the students cannot afford to buy ICT tools that will facilitate ICT-based teaching and learning. ICT integration in the teaching and learning of accounting will be a mirage without the availability of reliable ICT services and tools.

The study also recommends that there should be regular maintenance of the ICT infrastructure and services. When the ICT systems are not regularly maintained, they may be prone to rust, errors, and other viral attacks which may affect the efficient functioning of the systems and defeat the purpose of the integration.

The study also makes the following recommendations for future studies;

In the first place, as recommended by the constructivism learning theory that the best way to learn is to put the students in the center of the learning process, this study recommends that future researchers should investigate the impact of ICT integration on students learning as this will help

policy-makers to devise the appropriate policies when integrating ICT in accounting to ensure that the ultimate benefits go to the students.

Second, future studies could look at accounting curriculum provision and its implication for ICT integration in the teaching and learning of accounting. This is because most instructors are so aligned with the curriculum dictates and would not accept anything outside what is in the curriculum. This will help understand whether accounting institutions make provisions in the curriculum to take care of other emerging issues such as technological advancements.

Finally, it is also recommended for future studies look at accounting department support for ICT integration in the teaching and learning of accounting. This is because if ICT integration is to be formalised, then the accounting department heads have to take the lead by endorsing and implementing it. This will help in ascertaining how effective the integration will be implemented.

#### **5.4 Contribution of the Study**

The study is of importance to literature, theory, policy, and practice

##### **5.4.1 Literature / Theory**

The study explores ICT integration in the teaching and learning of accounting programmes in Ghana. Most of the studies in ICT and accounting education are few in developing country contexts and remained largely fragmented. This is the first study to consider ICT integration in the teaching and learning of accounting programmes in the Ghanaian context to the best of my knowledge if not among the few. This study, therefore, contributes to the existing body of literature on ICT integration and accounting education. The few existing studies that are in existence suffer from a theoretical-status-quo bias (Wu, 2016). This study adopts theories from other fields that are useful

in explaining how ICT could be integrated into the teaching and learning of accounting as well as the teaching approaches for ICT integration in accounting. This study, therefore, contributes to existing literature that adopts the Constructivism Learning Theory and the Technological Pedagogical Content Knowledge Theory. The study would therefore serve as a guide to future researchers who may want to research further on ICT integration in the teaching and learning of accounting not necessarily in Ghana but in other jurisdictions.

#### **5.4.2 Policy**

The results of the study indicated that most accounting students and lecturers integrate ICT in their learning and teaching in a more informal manner while others do not even integrate ICT tools and services. This finding could provide information serving as a guide to policy-makers, professional accounting bodies, and the heads of the various business accounting institutions to design appropriate policies that will make the integration of ICT in accounting compulsory and that will also formalise ICT integration in teaching and learning accounting. The accounting curriculum could also be revised to make provision for ICT-based teaching and learning. Again, the results of the study could guide policy-makers in their resource planning to invest in ICT hardware and software infrastructure to make the integration a reality. This study, therefore, contributes to policy by furnishing information on the need for ICT-integration policies in accounting education.

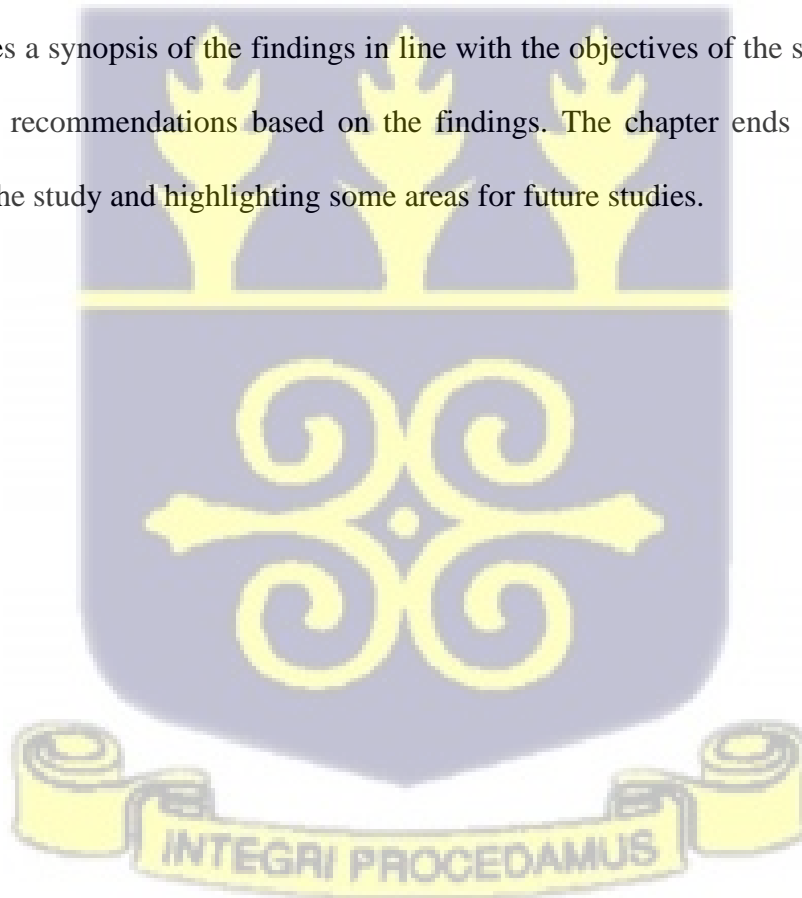
#### **5.4.3 Practice**

This study is also of relevance to those in practice that is accounting lecturers and business schools offering accounting programmes. The findings revealed that the traditional lecture method needs to be complemented with other innovative teaching methods for the integration of ICT in

accounting. This study would therefore inform lecturers of the teaching methods to adopt apart from the traditional lecture method. As a result, accounting lecturers would therefore be in a position to prepare and adopt the best teaching approaches to help students construct meaningful learning. Again, the study explores the reasons for integrating ICT in accounting and concluded that ICT integration is key to facilitating teaching and learning. This finding could also serve as information for students and lecturers to be aware of the benefits associated with ICT integration in accounting and as such motivate them to use ICT tools and services in accounting.

### **5.5 Chapter Summary**

The chapter gives a synopsis of the findings in line with the objectives of the study. It also gives conclusions and recommendations based on the findings. The chapter ends by presenting the contribution of the study and highlighting some areas for future studies.



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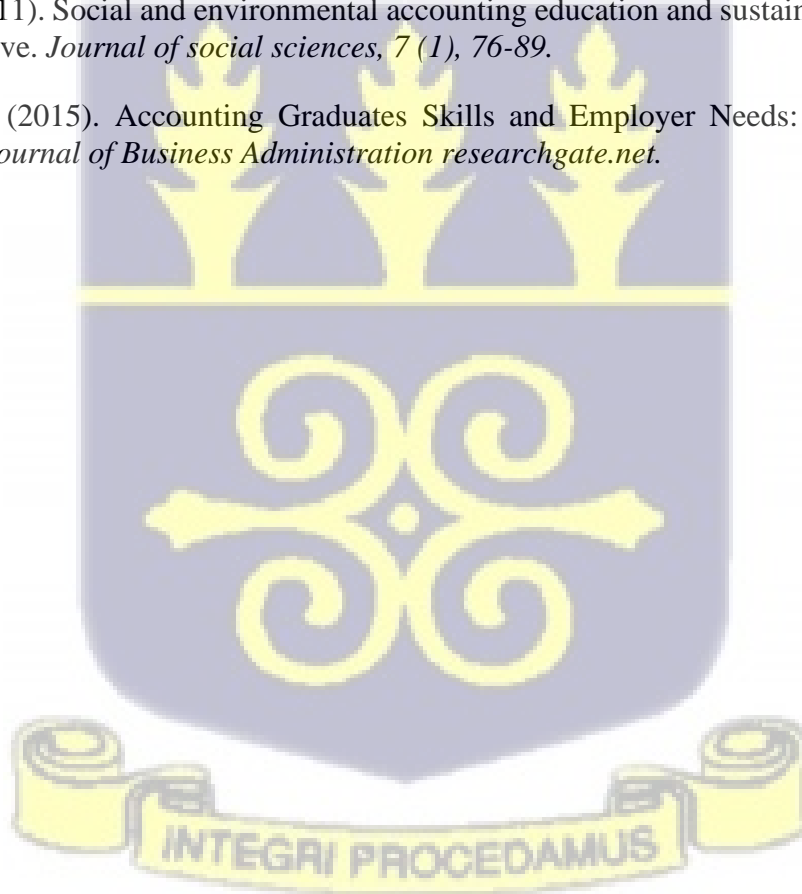
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## APPENDIX 1

### FOCUS GROUP DISCUSSION GUIDE FOR STUDENTS

The purpose of this guide is to seek responses from students as to the integration of ICT in the pedagogy of accounting programmes in Ghana. The information provided would be treated as strictly confidential and be used for this academic exercise. Students are therefore requested to share their views and opinions to contribute to knowledge.

1. Why is ICT integrated into the learning of accounting programmes in Ghana?

(a) Do you use technologies in the learning of accounting?

(i) If yes, share with me how useful it has been to you

(ii) If no, explain why you do not use technological tools

(b) Do the use of technologies have any benefit on the learning of accounting?

(i) If yes, list some of the benefits and explained them

(ii) If no, share with me why you think it does not improve the learning of accounting

(c) What challenges do you encounter when integrating ICT tools and services in your studies?

2. How is ICT integrated into the learning of accounting?

(a) Which technologies are you aware of as an accounting student?

(b) Do you use technologies in your studies as accounting students?

(i) If yes, share with me some of the technologies you use.

(ii) If no, why don't you use technologies in your studies?

(c) How do you integrate technological tools into your studies?

(d) Within which context do you think technologies are useful for you as an accounting student?

(i) Give examples of the contexts (research, academic, personal lives)

(ii) Explain how it has been useful?

(iii) Please share with me any other context you find technologies useful

(e) How frequently do you integrate ICT in the learning of accounting?



## APPENDIX 2

### INTERVIEW GUIDE FOR LECTURERS

The purpose of this guide is to seek responses from lecturers as to the integration of ICT in the pedagogy of accounting programmes in Ghana. The information provided would be treated as strictly confidential and be used for this academic exercise.

2. Why is there a need to use technologies in the teaching of accounting programmes in Ghana?

(a) Do you think in your opinion it is necessary to integrate technologies in the teaching of accounting?

(i) If yes, share with me your reasons

(ii) If no, why .....

(b) What are the major contributions of technologies?

(i) Teaching accounting

(ii) Accounting Research

(iii) Assessment of accounting

(iv) Curriculum design.

(c) What challenges do you encounter integrating ICT in your teaching?

2. How is ICT integrated into the teaching of accounting programmes?

(a) Do you use ICT in your teaching?

(i) If yes, share with me some of the technologies you use

(ii) If no, why don't you use technological tools and services in your teaching?

(b) How do you integrate technological tools into your teaching?

(c) In which context do you use the technologies; academic, research, personal and professional development?

(d) How frequently do you integrate ICT in your teaching?

3. What are your views on using ICT to teach quantitative and non-quantitative (accounting courses)

(a) What are the teaching approaches used to help students learn accounting courses when integrating technologies into your teaching?

(i) Case studies

(ii) Problem-based learning

(iii) Videos and group project work

(iv) Please share with me any other methods you are using

(b) In integrating technologies into the teaching of accounting, is the approach to teaching different?

(i) If yes, why

(ii) If no, why is the approach the same

