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EFFECT OF COMPUTER SELF-EFFICACY ON READINESS IN TEACHING WITH INFORMATION AND COMMUNICATION TECHNOLOGY AMONG COLLEGE TUTORS IN THE CENTRAL REGION

MOHAMMED KABIRU YAHAYA

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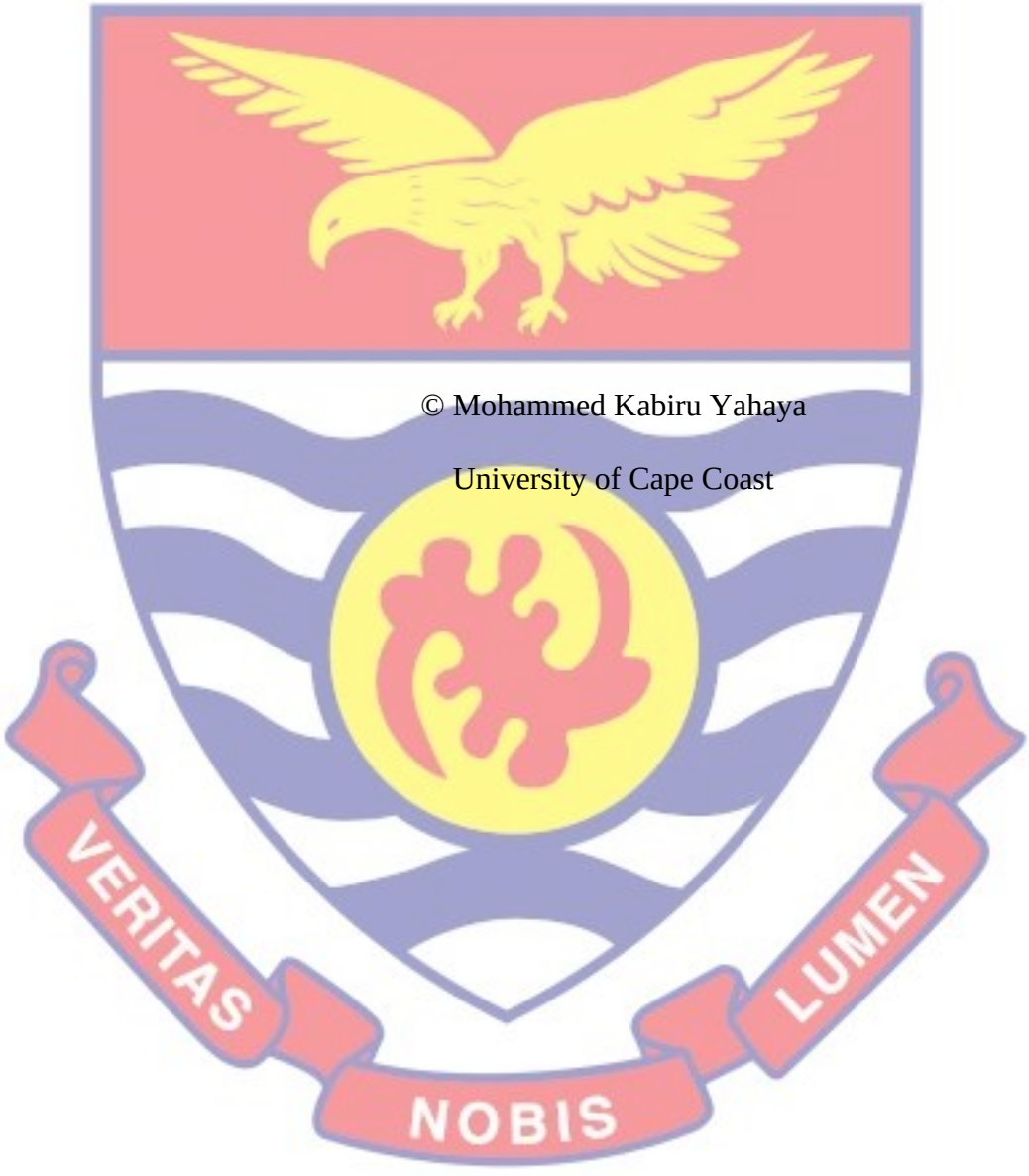

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BY

MOHAMMED KABIRU YAHAYA

Dissertation submitted to the Department of Mathematics and ICT Education, College of Education Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Education Information Technology degree.

NOVEMBER, 2022

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original research work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:…….. Date:……..

Name: Mohammed Kabiru Yahaya

Supervisors' Declaration

I hereby declare that the preparation and presentation of this dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature:……..…. Date:…….

Name: Dr. Nelly Abaidoo

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ABSTRACT

The study assessed the effects of self-efficacy, age, gender and computer experience on readiness to use information and communication technology in teaching among college tutors in the Central Region. The explanatory research design is employed. Using proportionate random sampling methods, 80 college tutors participated in the study. Descriptive statistical tools, such as frequency, percentage, mean and standard deviation; and inferential statistics, such as the Pearson product-moment correlation and regression analysis were used to analyse the research objectives. Results revealed that ICT self-efficacy has a statistically significant positive effect on readiness to use ICT in teaching. Also, it was found that age has a statistically significant positive effect on readiness to use ICT in teaching. Further, a statistically significant positive effect of gender on readiness to use ICT in teaching is reported. Finally, computer experience is found to have a statistically significant positive effect on readiness of college tutors to use ICT in teaching. The study concluded that college of education tutors' readiness to use ICT in teaching will improve if their self-efficacy in ICT is improved. It is, thus, recommended that leadership of colleges of education in the Central Region hire the services of ICT experts to educate their tutors on ICT integration into education.

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KEY WORDS

College

Computer

Information and Communication Technology

Readiness

Self-efficacy

Teaching

Tutors

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DEDICATION

To my wife, Hassanatu.

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CHAPTER ONE

INTRODUCTION

Background to the Study

Advancement in technology has had impact on every aspect of life. The 21st century has shown that digital revolution is getting to its peak. Transmission and dissemination of information has become very swift and convenient. Also, the century is associated with better, innovative and improved ways of communication, worldwide (Goosen, 2015). Teaching and learning in various technologically inclined institutions have also been improved (Sowmya,& Meenakshi, 2013). All these positive and plausible impacts have been possible due to technology, and, particularly the advent of the computer bringing into existence a new dawn for global development. For the time being, technology can only be seen to continue to get improved, as the world is witnessing the invention of new technologies within every space of time (Voogt, & McKenney, 2017; Kwao, & Ankomah, 2020).

Education is considered to be a holistic and an all-encompassing process adopted in developing an individual's self-efficacy, abilities, attitudes and other forms of behaviour which have the potential of contributing positively to societal development (Voogt, & McKenney, 2017; Wulansari, Adlim, & Syukri, 2020). The system of education should be structured in a way that the needs of a given society at a particular time are met (Atteh, Assan-Donkoh, Ayiku, Nkansa, & Adams, 2020). This means that education should be appraised in the light of how things are done at a particular time. Therefore, in this time of technological advancement, stakeholders in

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education should take conscious steps to incorporate technology into educational activities of educational institutions.

Also, according to Noor-Ul-Amin (2013), education is a very socially-oriented practice, and quality education has been correlated with teachers of strong or high levels of personal interaction with ICT. Noor-Ul-Amin opined that, involving ICT in teaching and learning activities allows for more student-centered learning environments. This implies that to facilitate lesson delivery in terms of relaying information to the right users, at any time, from anywhere, in the right way, the use of ICT as a tool cannot be underrated (Doucek, Fischer, & Novotný, 2012). A successful use of ICT in the classroom has the potential to engage and enhance the conceptual understating of students (Bell, Maeng, & Binns, 2013).

Considering the foregoing, the use of ICT has become very crucial in every educational instruction as it helps teachers and instructors to deliver teaching and instructions to their students. Allowing instantaneous response to instructions, as well as allowing students to advance in their studies at their own pace (Hilton, 2016). An ICT programme can be used to analyse and spot a problem, and thereby, saving resources and time as only the hitches or the difficulties identified would be paid attention to and resolve with all efforts. Some scholars assert that, considering the current dispensation, some concepts can only be taught by teachers with the use of the computer and its accessories; therefore, both teachers and students should be well equipped to enable them appreciate the practical knowledge needed to embrace the incorporation of ICT into an education system (Hilton, 2016; Atteh et al., 2020).

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Despite the numerous benefits associated with the use of ICT in education, most of the prior studies considering ICT in education focused on developed countries or western countries (Martin, Shaw, & Daughenbaugh, 2014). On the average, computer to instructor ratio in the United States of America schools has seen an increase from one computer to every one hundred instructors in 1981 to one computer to five instructors in 2019 (Wulansari et al., 2020). Apart from the fact that the United States has always been mentioned among the technologically advanced countries in the world, it is also seen in terms of the computer to teacher ratio. Schools in Japan and Western Europe are also recognised for their highly computerised system (Wulansari et al., 2020). However, same cannot be said of developing countries (Archambault, & Barnett, 2010) of which Ghana is part.

In most schools in Ghana, teachers find it difficult to combine the traditional methods of instruction with technology (Sarfo, Amartei, Adentwi, & Brefo, 2011). According to Sarfo, et al., some teachers even find it difficult to use the ICT facilities in their schools to facilitate and enhance teaching and learning. Thus, although the use of information and communication technology has been demonstrated to be efficient and effective when used alone for instruction, it may not usually suggest that similar outcomes are possible in normal learning environments (Abuhmaid, 2011). This means that there is the need for examination of factors influencing teachers' readiness to use ICT facilities to enhance teaching and learning. Studies have considered readiness in the use of ICT in teaching, but those on examination of factors related to teachers are limited in African countries, including Ghana (Agyemang, & Mereku, 2015).

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Tutors or teachers have been cited to have been influenced by factors which in turn impact their readiness to use ICT in their delivery in the classrooms. Prominent among these factors are self-efficacy, age, gender, and computer experience (Hatlevik, & Hatlevik, 2018; Ertmer, 2005; Ghavifekr, & Rosdy, 2015). Ertmer is of the view that teachers' ability to teach through technology and enhance the technological skills depends on their self-efficacy and their personal interaction and experience with the use of technological tools such as computers. Age and gender, according to Ertmer (2005) and Goosen, (2015), also influence the readiness level of teachers in the use of ICT in teaching.

Tutors in colleges of education in Ghana have not had full appreciation of the use of technology and its integration into the education system (Atteh et al., 2020; Obiri-Yeboah, Kwarteng, & Kyere-Djan, 2013). Particularly, tutors in the colleges of education in the Central Region of Ghana have been identified to have deficits in terms of readiness in the use of ICT and advanced technologies to enhance and promote teaching and learning. Despite the various benefits an institution that embraces technology enjoys, these colleges, though some of them have the requisite technological facilities, are not reaping the full benefits. Therefore, has left a lot to be desired of tutors of these colleges of education. Considering this background, a study to find out the effect of self-efficacy, age, gender and computer experience on readiness in teaching with ICT is relevant (Mukamal, Silbert, & Taylor, 2015).

Statement of the Problem

Using ICT for teaching and learning purposes has been recognised worldwide; however, its adoption and readiness to use in developing countries

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of which Ghana is part, particularly in the educational institutions, remain very limited. In Ghana, literatures have shown that integration and the use of ICTs at various levels of education for teaching is still low (Atinyo, & Creppy, 2021; Mereku et al., 2009; Sarfo, & Ansong-Gyimah, 2011; Obiri-Yeboah, Kwarteng, & Kyere-Djan, 2013;Yeboah, 2016; Sarfo, Amankwah, & Konin, 2017). Tutors in colleges of education in the Central Region appear to be behind time in the use ICT in the classroom, and this could be possibly attributed to factors such as self-efficacy, age, gender, and computer experience. The Education Sector Strategic Plans, ESP 2010-2020 and ESP 2018-2030, of Ghana are plans geared towards promoting ICT in educational institutions including the colleges (Boampong, 2021). If steps are not taken promptly, ICT integration in these colleges could be interrupted and all investments made in this regard go waste.

In Ghana, very few studies have been conducted to look at factors influencing teachers' readiness in the use of ICT (Obiri-Yeboah, Owusu-Kwarteng & Kyere-Djan, 2013). Also, prior related studies mainly focused on the external factors, such as availability, access, infrastructure and funding, that influence ICT usage (Fu, 2013). Thus, to the best of knowledge of the researcher, no study has yet been conducted to assess the effect of personal factors such as self-efficacy, age, gender, and computer experience on readiness in the use of ICT in teaching among tutors at the colleges of education in the Central Region of Ghana. This has created a gap in literature, and this study was carried out to assess the effect of self-efficacy, age, gender, and computer experience on readiness in teaching with ICT among tutors at the colleges of education in the Central Region of Ghana.

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Purpose of the Study

The main purpose of this study was to assess the effect of self-efficacy, age, gender, and computer experience on readiness in teaching with ICT among tutors at the colleges of education in the Central Region of Ghana.

Research Objectives

This study sought to:

1. Assess the effect of self-efficacy on tutors' readiness to use ICT in teaching.
2. Determine the effect of age on tutors' readiness to use ICT in teaching.
3. Assess the effect of gender on tutors' readiness to use ICT in teaching.
4. Assess the effect of computer experience on tutors' readiness to use ICT in teaching.

Null Hypotheses

The following null hypotheses were also formulated and tested.

$\mathbf{H_0^1}$: There is no statistically significant effect of elf-efficacy on tutors' readiness to use ICT in teaching.

$\mathbf{H_0^2}$: There is not statistically significant effect of age on tutors' readiness to use ICT in teaching.

$\mathbf{H_0^3}$: There is no statistically significant effect of gender on tutors' readiness to use ICT in teaching.

$\mathbf{H_0^4}$: There is no statistically significant effect of computer experience on tutors' readiness to use ICT in teaching.

Significance of the Study

The findings of this study would be significant in many ways. The findings of the study may help policymakers such as the Ministry of Education

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to identify, design and implement effective interventions to integrate ICT in teaching in colleges. Colleges of education tutors would also be able to acquire knowledge from the findings of this study to enable them enhance their competence in the use of ICT and other technologies in their classrooms. The findings may also provide new and additional information, from Ghanaian context, to literature on ICT integration into education.

Delimitation

The study was restricted to three colleges of education – OLA College, Komenda College and Foso College – in the Central Region. The researcher chose this study local due to ease of access to data. Also, the main focus of the study were self-efficacy, age, gender and computer experience as independent variables, and readiness to use ICT in teaching as the dependent variable. Further, the study focused only on the tutors at these three colleges of education in the Central Region of Ghana. It should also be pointed out that only the tutors already in these colleges at the time of this study were considered; those who joined these colleges during or after the time of the study were not considered. Finally, the study is also delimited to the study variables such as self-efficacy, age, gender, computer experience and readiness.

Limitation

Adopting the survey approach, the questionnaires were used for the data collection. Some of the respondents seemed to have less knowledge in the subject matter of this study; thereby, making the researcher spend more time explaining concepts to some of the respondents in order to ensure that they provided candid responses to the items in the instrument. Also, analysing

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respondents' responses only quantitatively might not represent the full view of the teachers as supporting the approach with qualitative technique would have averted, to some extent, the inherent limitations of using just a single approach. However, objectivity was achieved considering the scope defined by the researcher.

Organisation of the Study

The study comprised five chapters. Chapter One covered the background to the study, statement of the problem, purpose of the study, the study objectives, research hypotheses, significance of the study, delimitation, and limitations of the study. The second chapter focused on the review of existing literature in relation to ICT use, among others. Research methods were captured in chapter Three. chapter Four presented results and discussion of findings. The fifth chapter focused on summary, key findings, conclusions, recommendations, as well as suggestions for further studies.

Chapter Summary

This chapter presented the background to the study which discussed background issues related to tutors' readiness to use ICT in teaching as well as the various concepts – self-efficacy, age, gender, and computer experience – of interest to this study, statement of the problem, purpose of the study, research objectives, research hypotheses, significance of the study, delimitation of the study, limitations of the study, and organisation of the study.

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CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter presents related literatures on the ability of tutors to use ICT in teaching. The first part of the chapter presents the theoretical framework; the second part is on conceptual review which comprises meaning of ICT, global ICT integration in teaching, ICT integration in teaching in Ghana, self-efficacy, age, gender and computer experience, as well as readiness in computer use; the third part reviews related empirical studies; the fourth part presents the conceptual framework, and finally the chapter summary is presented.

Theoretical Framework

This section reviews the theories underpinning this study. The study employed the technological pedagogical content knowledge (TPACK) theory developed by Mishra and Koehler (2006) and the self-efficacy theory by Bandura (1977). The theories are discussed in details below.

Technological pedagogical content knowledge (TPACK) theory

The technological pedagogical content knowledge (TPACK) theory was developed by Mishra and Koehler (2006) as a framework which conceptualises teacher knowledge required for appropriately teaching with information and communication technology. Mishra and Koehler's theory succeeded Strickberger, Schulman, and Hutchins, (1987) pedagogical content knowledge (PCK). The TPACK, unlike PCK, considers technological knowledge to effectually and efficiently integrate ICT in teaching and learning. The TPACK theory is considered useful in explaining the kind of

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know-how needed by teachers to effectively incorporate technology in their teaching activities, by surmounting challenges, such as those related age and gender, and putting appropriate measures in place to enhance practices of teaching and learning (Voogt, & McKenney, 2017).

This theory, in essence, posits that integrating ICT into education, though presents challenges, if the right measures are put in place by teachers, such as pursuing experience in computing among others, ICT facilities can be put to best use to enhance teaching and learning in schools. This is in line with studies that assert that teachers need to have knowledge about computer hardware and software in order to operate the technological systems in schools efficiently (Voogt, Fisser, Roblin, Tondeur, & van Braak, 2013). Therefore, it could be stated, with reference to this theory, that teachers' experience in computer as well as other factors such as age and gender can influence the tutors' readiness to use ICT in teaching at the colleges of education.

Self-efficacy theory

Self-efficacy theory posited that all change of psychological processes function over the modification of entities' expectations and personal mastery. The anticipations regarding self-mastery could be classified as consequent expectation which involves the confidence that a specific behaviour may or may not culminate in a particular result, and efficacy expectation which is the certainty that an individual is or is not incapable to perform a required activity. Efficacy expectations were considered to have given rise to subsequent behaviours (Bandura, 1977). Per this study, self-efficacy, as a precursor of college tutors' readiness to use ICT in teaching, makes people take action, and this may mean that self-efficacy propels tutors at the colleges of education to

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take actions indicative of their readiness to incorporate technology into their teaching deliveries. On the other hand, tutors who have low self-efficacy in the use of ICT are less likely to undertake practices or activities leading to their readiness to use ICT in teaching at the college.

Conceptual Review

This section of the chapter presents a review of the key concepts in this study. The concepts reviewed are the meaning of ICT, global ICT integration into teaching, ICT integration in teaching in Ghana, self-efficacy, age, gender, computer experience and readiness to use ICT.

Meaning of ICT

The acronym ICT stands for Information and Communication Technology. Information and communication technology comprises a diverse set of technological tools and resources used to communicate, to create, disseminate, store and manage information (Aceto, Persico,& Pescapé, 2018). These technologies include computers, the internet, broadcasting technologies (radio and television), and telephone. Also, according to Lalrohlui, R (2013)., ICT covers internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network-based information services, and other related information and communication activities.

Information and communication technology is at the very heart of many educational processes; consequently, ICT use in education has a long history. Much has been written about the use of film, radio, telephones, and television in education (Cuban, 1986). Because access to digital tools,

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applications, and networks continues to grow worldwide and media are increasingly available in digital form, the use of ICT in education is expected to increase dramatically.

According to Noor-Ul-Amin, (2013), information and communication technology, within a very short time, has become one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy. The various kinds of ICT products available and commonly used these days include teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audiocassettes, video and audio tapes and CD ROMs. These have been of great help in the period of the COVID-19 pandemic.

Global ICT integration into teaching

The effort of integrating ICT has received great attention in educational systems in many countries. Given that we are now in an era of information explosion marked by global competitiveness, ICT has been recognised by educational institutions worldwide. The term information and communication technology is a broad and comprehensive expression. Information and communication technology is a set of technological tools that are used to communicate (Meladi, & Awolusi, 2019).

It goes beyond technologies and techniques used to manage information and knowledge. Its effectiveness, efficiency and accuracy cannot go unnoticed. Information communication technologies play a crucial role in all aspects of human life. ICT has the potential to integrate world economies;

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thus, breaking the barriers created by time and distance. Due to the shift from teacher-centered education system to student-centered education system, today, information and communication technology has, however, assumed a very important role in education and society at large (Meladi, & Awolusi, 2019).

Several countries have developed national policies for guiding and directing ICT integration into education and social programmes (Hallissy, Butler, Hurley, & Marshall, 2013). For instance, the USA has developed a national ICT policy which has strategies, usage indicators and goals for the use of the ICT infrastructure in teaching in secondary schools. They have incorporated technology into their programmes in secondary schools to improve the students' acquisition of ICT skills.

In similar manner, Africa over the last decade has witnessed the development of ICTs in different sectors including education. Extolling the importance of ICT in the instructional process, studies have recognised ICT as a tool that helps in developing constructivist teaching techniques (Luhamya, Bakkabulindi, & Muyinda, 2017). According to Luhamya et al. (2017), the integration of ICT in teaching brings about powerful learning environments and helps students to deal with knowledge in active, self-directed and constructive ways.

Also, Rastogi, and Malhotra, (2013) have the assertion that ICT offers a number of powerful tools which can help transform teacher-centric and text-bound classrooms to student-centric to enrich interactive knowledge. The prospect of the use of ICT in teaching is unquestionably infinity. ICT acts as the gateway to the world of information and helps teachers to be updated

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(Rastogi, & Malhotra, (2013). Moreover, ICT can improve teaching by enhancing an already practised knowledge and introducing new ways of teaching and learning. ICT provides teachers with a global forum for accessing knowledge in a wider way. Information and communication technology has turned out to be an effective educational technology which promotes some dramatic changes in teaching and learning processes (Luhamya et al., 2017).

Since ICT has the potential to change the education system to a great extent, teachers must have the knowledge and skills to use new digital tools to help all students achieve high academic standards. As Olowookere and Iyiola (2018) rightly said, teachers should comply with ICT so that the desired improvements in their teaching process can be achieved. While many initiatives, investments and research studies were undertaken worldwide to integrate ICT into education, ICT integration in teaching has been low and limited in the developing countries.

Although the advent of ICT and its integration into educational system, especially at the tertiary level, aims to improve the teaching and learning process, teachers are faced with some barriers that prevent them to employ ICT in the classroom or develop supporting materials through ICT. Studies have also shown that there are barriers that prevent teachers to use ICT in developing supporting materials in the classroom. For instance, Rastogi, and Malhotra, (2013) opined that the effective integration of ICT into education is still occasionally difficult and problematic for teachers due to certain barriers.

According to Rastogi, and Malhotra, (2013), teachers' hesitancy in integrating ICT, amount of workload, lack of time, teaching experience, age and lack of ICT skills were identified to be some barriers that discouraged the

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teachers to integrate ICT in the classroom. Moreover, teachers' gender is considered as a major predictor of the use of new technologies in the educational settings (Nikolopoulou, & Gialamas, 2016).

Sánchez and Batet (2012) studied the difficulties teachers face while using ICT in the classroom in Spain. The main difficulties reported by the teachers in the study were: personal factors, lack of educational resources, scarce institutional support. Also, teachers' confidence with technology use was significantly linked to gender, training in ICT, years of experience with computers, and computer use in class. This means the success of technology use in the teaching process largely depends on many factors associated with the teachers.

Information and communication technology integration in teaching in Ghana

The integration of ICT into teaching and learning is seen as a priority by many governments and educational institutions worldwide. Due to the impacts of ICT, its integration in teaching and learning has been of serious concern among government policy makers, leaders of schools, teachers, as well as researchers worldwide. A wide body of research has shown that the rapid introduction of ICT into teaching and learning process involves the implementation of successful ICT policies (Atinyo, & Creppy, 2021; Nikolopoulou, & Gialamas, 2016).

Due to the growing importance of ICT in acceleration of education, an ICT policy implementation strategy or framework for the education sector of a nation is therefore essential. In Ghana, the integration of ICT in teaching as a powerful tool for a successful education is recognised (Mereku et al., 2009).

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Ghana has formulated two polices aimed at facilitating the country's development into an information society: the ICT for Accelerated Development Policy of 2003 and the National Telecommunications Policy of 2005 (Mereku et al., 2009).

Among other things, the policy requires the use of ICT or computer for teaching and learning at all levels of education. As a result of this policy, ICT courses were introduced in all basic and secondary schools in Ghana in 2007. Also, all tertiary institutions in Ghana offer computer technology as a compulsory course (Mereku et al., 2009). To revitalise quality teaching and learning processes and open up new opportunities, the government of Ghana has developed a number of master plans on ICT in education (Sam-Amoah, & Frimpong, 2020).

The emphasis is placed upon why the government of Ghana has championed the use of ICT in education for improved educational outcomes in the last decade. The Education Strategic Plan (2003-2015) and (2010-2020) of the Ghana Education Service identified the need for ICT in education to help achieve the objectives of education access, quality, gender inclusiveness, and effective management. However, Ghana is lagging behind the use of ICT by teachers in teaching, despite the fact that Ghana has identified ICT as pivotal element in education (Sam-Amoah, & Frimpong, 2020).

As indicated by Mereku et al. (2009), there is a gap between the policy directives and actual practice. Even though the implementation of ICT policy aimed to support and transform the education system, studies have shown that the ICT implementation in the school systems in Ghana has not been as effective or successful as expected (Sam-Amoah, & Frimpong, 2020;

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Edumadze, & Owusu, 2013). Given these perceived challenges, this study sought to assess the effect of computer self-efficacy, age, gender and computer experience on readiness in teaching with ICTs, among teacher training college tutors in the Central Region.

Self-efficacy

The concept of self-efficacy is central to Albert Bandura, who proposed the role of observational learning, social experience and reciprocal determinism in the development of a personality. According to Mensah, Asamani, (2013), self-efficacy is people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Jenkins (2015) also emphasised that self-efficacy is concerned about the perception or judgment of being able to accomplish a specific goal and cannot be sensed globally. He stressed that in order to gain a sense of self-efficacy, a person can complete a skill successfully, observe someone else doing a task successfully, acquire positive feedback about completing a task or rely on physiological cues.

Self-efficacy is a concept which is commonly used in educational, clinical, organisational, social, and health contexts (Fanni, Rega, & Cantoni, 2013). Self-efficacy is a belief that influences how one thinks, feels, motivates him/her, and acts or deals with different situations. Thus, self-efficacy beliefs determine how people feel, think, motivate themselves and behave. It produces those diverse effects through four major processes which are cognitive, motivational, affective, and selection processes (Fanni et al., 2013). This means self-efficacy can play a role not only in how you feel about yourself, but also in whether or not you achieve your goals successfully in life.

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As Bandura (1977) and other researchers have demonstrated, self-efficacy can have an impact on everything from psychological states to behaviour to motivation.

The definition set forth by Bandura (1977) has important implications for the measurement of any type of self-efficacy. Basically, computer or ICT self-efficacy is the belief in one's ability to successfully perform a technologically sophisticated new task. As Musharraf, Bauman, Anis-ul-Haque and Malik (2018) put it, ICT self-efficacy is defined as one's own judgment of ability to carry out the activities required to complete the essential tasks related to internet and communication technology, including the use of social networking services successfully. When examining the use of ICT, understanding of self-efficacy is very critical, as self-efficacy can play an important role in ICT adoption and how people use or control their technical abilities.

Fanni et al. (2013), Klassen and Chiu (2010) and Krumsvik (2011) have shown that when it comes to using ICT in teaching, the concept of self-efficacy is essential. In addition, Niederhauser and Perkmen (2010) emphasised that convictions about self-efficacy seem important for a person deciding whether or not to solve a particular task using ICT will be positively or negatively viewed. Also, Krumsvik (2011) asserts that effective and successful use of ICT depends on one's self-efficacy level and beliefs, including a number of factors such as aspects of the personality and personal attitudes. Therefore, it can be concluded that both a positive attitude towards digital media and ICT, as well as a positive feeling about one's self-efficacy to

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use them in class are prerequisites for the successful implementation of modern ICT tools.

Drawing from the discussion thus far, it could be seen that self-efficacy in ICT can be evaluated by the ability of users such as tutors to use basic computer applications such as word processors, internet, email, power-point presentations, spreadsheet; media-related skills such as graphic editing, video editing, web editing, creation of animations; and web-based skills such as use of conferencing materials and software, and use of learning management systems to support teaching (Fanni et al., 2013; Klassen, & Chiu, 2010; Krumsvik, 2011).

Age

According to the Merriam-Webster (2021) dictionary, age is referred to as the length of time a person or thing has existed. This means that all things existing have age. Age, or the length of time a person or thing has existed, is usually expressed in years (Merriam-Webster, 2021). For example, "23years", "40years" and "30years" are ages expressed in years. It should also be stated that age of a person or thing can be expressed in months, weeks and days, among others. In terms of research studies, ages of study participants are usually expressed in years using intervals (Mtebe & Raphael, 2017; Isaboke, 2018; Boakye &Banini, 2008). For instance, "20-40years", "50-70years" are expressed in years using intervals or ranges.

Gender

The word gender and sex have been used interchangeably. The difference between gender and sex has always been a topic for hot debates among researchers and scholars (Bijami, Kashef, & Khaksari, 2013).

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However, it is common to see people use these two words when filling research questionnaires, medical documents and many other official paper works. This is because these words are simple and easy to use in describing basic characteristics of human (Bijami et al., 2013). That notwithstanding, the word "sex" has come to stay as the biological characteristics of being male or female, whilst "gender" only refers to the behavioural, social, and psychological features that characterise men and women (Muto-Humphrey, 2005.). Thus, sex is biological and gender is social characteristics of human being (Pawelczyk, 2007).

According to Muto-Humphrey (2005), gender is one of the social classifications used to determine language used by people. The word "gender" obviously discloses the social and contextual expectations society places on part of each gender – male and female – both culturally and socially (Kamari, Gorjian, & Pazhakh, 2012). Generally, gender has been considered as a social phenomenon (Bijami et al., 2013). This is due to the drift from perceiving gender as individual construct to perceiving it as a social construct (Bijami et al., 2013; Kamari, Gorjian, & Pazhakh, 2012).

From the various definitions and explanations given to the word 'gender', it is obvious that it goes beyond just being male and female. This means that it has more to do with masculinity and femininity of an individual. As to whether an individual is considered masculine or feminine, society determines it. However, considering all these, everything still boils down to male and female, or being a man or a woman as both the masculine and feminine characteristics are either ascribed to a male or a female depending on how society perceives the individual. Thus, when society perceives a female to

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have behaved like a male, the masculine gender is ascribed to her, as males are usually perceived to be masculine as opposed to female femininity (Ahmadi, Maftoon, & Gholami, 2012).

As to the measurement of gender for statistical purposes in research, it is usually considered as a dummy variable which has two levels or categories and takes only the value zero (0) or one (1) (Quartey, & Blankson, 2008; Fisher, 2010). For instance, in their study to find which gender group is more likely to save, Quartey and Blankson (2008) assigned a value of zero (0) to females and a value of one (1) to their male counterparts. A similar approach was used by Fisher (2010). This is to say that if a study employs regression techniques for analysis, it is common to see gender being assigned the value "0" or "1".

Computer experience

Computer experience can be termed as the knowledge or skills obtained from computer training. This gives an individual the knowledge and ability to use computers and related technologies efficiently, with skill levels ranging from elementary use to computer programming and advanced problem solving (Buckingham, 2010). It can also be said to be the comfort level someone has with using computer programmes and applications (Buckingham, 2010).

In the context of teachers' readiness to use ICT in teaching and learning, teachers' professional development in the use of computers is a key factor to successful integration of computers into classroom teaching. As Ghavifekr and Rosdy (2015) emphasised, ICT professional development training programmes for teachers play a key role in enhancing ICT integration

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in teaching. The number of computer skills acquired by teachers, its currency, and the number of hours of formal training play an important role in positioning teachers' actual use of computer in a higher level.

Teachers' training in ICT and teaching experience are consistent in affecting ICT implementation. When teachers are trained, the expertise expected increases in competence (Ghavifekr, & Rosdy, 2015). Teachers require ICT experts to show them how to integrate ICT to make learning easier for students. A full and complete integration of the use ICT in education requires high quality frequent training and professional development. If this training is not provided, then attempts at integration will inevitably be unsuccessful. Training teachers on the use of technology has an influence on intention to use and actual use of information technology, according to Kale and Goh (2014).

Teachers receiving more training of any type, but especially of integration training, are more likely to use software to enhance instruction in their classrooms. Several previous empirical studies have given discerning evidence that the variable training in computer usage has a positive impact on the actual usage of computer (Chege, 2014). For instance, according to Angers and Machtmes, teachers who receive eleven or more hours of curriculum-integration training are five times more likely to say they believe they are much better prepared to integrate technology into their classroom lessons than teachers who received no such training. Also, Bordbar asserted that teachers' computer skills are primary predictors of the incorporation of ICT into teaching.

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Usually, computer experience is evaluated through an individual's ability to use ICT in planning, learning, teaching, assessment and evaluation; to collaborate and network among teaching professionals; to apply ICT skills and concepts (Buckingham, 2010); ability to operate basic computer functions and word processing applications, and presentation software; skills in the use of the internet and internet resources, participating in e-learning and online classes, ability to develop web-page, among others (Buckingham, 2010).

Readiness to use ICT

The term readiness has been defined as the state of being fully prepared for something (Wills, El-Gayar, & Sarnikar, 2011). This is to say that being prepared to do something is referred to as "readiness". For any individual to do something and do it very well, there is the need for good preparation as good preparation usually makes task delivery easier and faster, and according to Stoop and Berg (2003), there are questions that help evaluate technological systems and their implementation to enable assessment of level of readiness of use. According to Stoop and Berg, questions such as; is the device simple to use? Or what are the advantages, at this point of assessment, compared to the old situation? These questions can help stakeholders appreciate the benefits of ICT and why they should prepare the users to incorporate them in their deliveries.

Further, as stressed by Buckingham, (2010), the incorporation or adoption of technology in any system is seen as a novel advancement and implementation of information technology. Buckingham also claimed that when innovation is implemented, any innovation in a society or system allows the community to adapt to the changes. Innovation adoption is simply an

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adoption of change and must thus be analysed in the context of systematic change management and the adoption of innovation (Adjorlolo, & Ellingsen, 2013). Again, Adjorlolo and Ellingsen indicated that technological readiness can be assessed using readiness for hardware, network, related software, IT support personnel and users' past information technology experience.

According to Afarikumah (2014), the involvement of hardware, networks, related applications, IT support staff and users' previous IT experience is a prerequisite to technical readiness for the implementation of innovation in educational institutions. This means that readiness in the use of ICT is measured or assessed by availability of computers and accessories, as well as the availability of technical hands to take care of these information technology items. Thus, for education institutions to successfully adopt and implement electronic records, there should be a complete readiness, technology-wise, in order to save the educational institutions and teachers from time-wasting and low productivity.

Empirical Review

This section of the chapter presents the review of related empirical studies. This has been organised under self-efficacy and readiness to use ICT in teaching, age and readiness to use ICT in teaching, gender and readiness to use ICT in teaching, and computer experience and readiness to use ICT in teaching.

Self-efficacy and Readiness to Use ICT

A number of prior authors looked at how self-efficacy influences readiness to use ICT. For example, Isaboke (2018) investigated teachers' preparedness for the integration of ICT in teaching lower primary school

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pupils in Borabu sub-county, Kenya. The study adopted a descriptive survey design using 34 head teachers and 102 lower school primary teachers in Borabu Sub-County. The study found, among other things, that teachers' training, teachers' teaching experience and teachers' level of self-efficacy had a positive and significant effect on the integration of ICT in teaching-learning. However, it was concluded that the teachers had a low level of ICT use for educational purpose. This study was relevant to the current study as it partially focused on self-efficacy and computer training; nevertheless, the outcome of the could not comprehensively applied in decision making at the current study locale, hence, the need to fill this lacuna by carrying this current study.

Also, Mtebe and Raphael (2017) examined pre-service teachers' self-efficacy beliefs towards educational technologies integration in the classroom at the two colleges in Tanzania that prepare secondary education teachers. Using regression analysis, the study found out that the determinants of self-efficacy beliefs among pre-service teachers towards educational technologies integration are support, perceived ease of use, performance expectancy, and social influence. The findings of this study enhance the understanding of the current researcher about factors that hinder teachers from integrating educational technologies into the classroom. Thus, this understanding could be applied to carry out the current study to ensure that the local gap in literature in terms of the relationship between tutors' self-efficacy and readiness to use ICT is filled. Also, the current study's focus was the tutors at the colleges of education instead of secondary school teachers considered by Raphael and Mtebe.

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Similarly, Yamamoto and Yamaguchi (2016) investigated the current climate of ICT integrated education in Mongolia through lenses of teachers' self-efficacy. The data were collected from 838 primary school teachers in Mongolia. The researchers employed the pairwise correlation coefficient to assess the relationships between three types of perceived self-efficacy (confidence, competency and satisfaction) and two education aspects, teacher training activities and practical ICT experience at school level. The study found that perceived influence of school-based trainings had the strongest correlation among teacher training activities. This study was conducted outside the current study and area and used primary teachers instead of the college tutors considered in the current study. This implies that the current study is in the right direction as it seeks to focus on college tutors.

Further, ELDaou (2016) explored the relationship of the perceived teacher's self-efficacy related to ICT usefulness and attitudes after training and the student's science education performance results. This study also examines the impact of using technology on the science learning process, the student's interaction with their teacher and colleagues, their concentration, and participation in the class. Findings of this study revealed that teacher's self-efficacy in the level of technology use, and attitudes have significant effects on the grades and interaction of students with special needs. The results also indicated that participants, who were trained, were able to better define and apply technology in the science classroom than group two which was not trained. Therefore, knowledge and beliefs can influence teacher's intent to use technology in the classroom, especially as evidenced by the integration of ICT in their lesson plans.

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In similar manner, Kale and Goh (2014) attempt to identify K12 teachers' attitudes toward the use of Web 2.0 technologies in their teaching. The study used 161 teachers from eight middle and high schools in both rural and urban locations of West Virginia. Overall, the findings indicate that while teachers are fairly proficient in their computer and internet skills and have fairly high computer self-efficacy; their workload and a structured and standardised curriculum were inhibitors of Web 2.0 adoption. Age, self-efficacy, workload, and views about Web 2.0 in teaching were observed to be significant factors predicting teachers' likelihood to find Web 2.0 appealing for teaching. Furthermore, the findings suggest infrastructural improvements, workload adjustments, and increased professional development opportunities would allow teachers to use Web 2.0 technologies in their teaching.

In yet another study, Bozdogan and Özen (2014) assessed the use of ICT and factors affecting pre-service ELT teachers' perceived ICT self-efficacy. The study concluded that majority of the pre-service ELT teachers find themselves self-efficacious in the use of ICT. The results further suggest that the perceived use of computers, experience and confidence play significant role while lack of knowledge and skills, technical problems and lack of confidence negatively influence ICT self-efficacy. Though Bozdogan and Özen considered ICT self-efficacy, the study did not tell any story about the relationship between self-efficacy and readiness to use ICT in teaching. This shows that there is the need for further studies to fill the gaps left in literature, and the current study seeks to assess the link between self-efficacy in ICT and readiness to use ICT in teaching.

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Summarily, from the forgoing reviews, it is clear that there is the need for a study which purposely, among other things, focuses on assessing the relationship between self-efficacy in ICT and readiness to use ICT in teaching by college tutors, as the researcher did not come across any study that focused on analysing the relationship or the effect of ICT self-efficacy and readiness to use ICT in teaching by tutors at the colleges of education.

Age and Teachers' Readiness to Use ICT

Different teacher-related variables influence their readiness to use ICT as a potential way to improve teaching. Age has been shown to have a significant impact on teachers' digital competence. Age has been classified in terms of Mtebe and Raphael (2017) conceptions of digital natives and immigrants, that younger teachers are able to process information easily, learn by multi-tasking, prefer active rather than passive learning, but older teachers are unable because they were not raised in the digital world. This means that younger teachers are more inclined to integrating technology into their teaching than their older counterparts. Therefore, Prenkys' classification, it can be said that age of teachers directly predicts use of ICT tools in delivering contents, and readiness to adopt new methods of teaching and learning using ICT.

Other previous studies have also shown that age plays a major role in the teachers' interaction with technology. For example, Venkatesh, Morris, Davis and Davis (2003) have shown older teachers were found to have more trouble accepting technology. Mtebe and Raphael (2017) showed that older teachers usually have greater difficulties in handling a computer device or in the acquisition of computer skills. All these show that age directly influences

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individuals' readiness to use ICT. However, these studies were carried outside the current study area and mostly employed the qualitative approach in their methodology. The current study, on the other hand, employed the quantitative approach and involved college tutors.

Also, Gloria and Abimbade (2013), in their study to analyse the relationship between age and readiness of teachers to use technology in the classroom, using the correlational design, found that teachers' age has a significant influence on the readiness of teachers to use technology in classroom teaching. Mensah, and Asamani, (2013) also, using similar approach as Gloria and Abimbade, found that younger teachers have high computer self-efficacy than older teachers. Mensah, and Asamani, (2013) then emphasised that younger teachers are more capable and confident in the use of computer in teaching and learning, compared to their older teacher counterparts.

From the discussion thus far, it is obvious the studies available on the effect of age on readiness to use ICT is limited, and even those the researcher came across were conducted elsewhere and involved participants other than college tutors. This implies that there is a gap in literature that needs to be filled. The current study, as it directly focuses on college tutors by determining the effect of age on their readiness to use ICT in teaching, contributes to this gap literature.

Gender and Teachers' Readiness to Use ICT

There are gender-related differences in the usage of ICT. Gaps based on gender, has been postulated to explain teachers' readiness to use ICT in teaching. Many tutors at all levels of education have a genuine fear over the

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use of ICT to teach students (Mustafa, 2014). Gender differences and the use of ICT have been reported in several studies to have a strong relationship. Although the number of female teachers is growing worldwide, their internet usage is still lower in many ways than males (Natia, & Al-hassan, 2015). Consequently, women miss the opportunity to access information and experience a variety of online services, and this situation somehow has some adverse educational consequences. Women's negative attitude toward modern technologies has been documented causing a low level of computer literacy, low levels of computer skills and a bit of computer-negative self-efficacy compared to men.

A wide body of existing literature has shown that female teachers have low levels of computer use due to their limited technology access, skill, and interest. For example, Natia, and Al-hassan, (2015) examined the gender differences in term of ICT usage, knowledge, skills and application among teachers and found a significant gender differences in terms of ICT application, knowledge and skills.

Female training college tutors were found to have lower ICT knowledge, skills and ICT applications when compared to male teachers (Natia, & Al-hassan, 2015). Natia and Al-hassan (2015) also found that there is a difference between male and female teachers on the use of ICT to prepare lesson, enrich lessons and deliver lessons. Natia and Al-hassan (2015) – employed the quantitative methods and used the independent samples test techniques for their analyses.

Similarly, Alazzam, Bakar, Hamzah and Asimiran (2012) examined ICT readiness and the effects of demographic characteristics, educational

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background, and support factors on the ICT readiness of technical and vocational teachers in Malaysia. The study used data from 329 technical and vocational teachers who are teaching engineering subjects in Malaysian technical and vocational schools. The questionnaire consisted of items related to ICT knowledge, ICT skills, and attitudes toward ICT. The findings in this study indicated that the teachers' ICT knowledge was above average, the teachers' ICT skills were at a moderate level, and their attitudes toward ICT were positive. There was a significant effect of gender on teachers' ICT readiness in terms of ICT knowledge, ICT skills, and attitudes. No significant effect of teachers' educational background and support factors on teachers' overall ICT readiness was discovered.

Additionally, Kounenou, Roussos, Yotsidi and Tountopoulou (2015) assessed trainee teachers' intention to incorporating ICT use into teaching practice in relation to their psychological characteristics. The study employs a pre- and post- intervention research design consisted of a training programme in ICT in Education offered to a sample of 109 undergraduate trainee teachers which was divided into experimental (homogenous and heterogeneous) and control groups based on their personality traits and psychological characteristics in order to examine the significance of these traits' configuration in work groups, their intention to incorporate ICT into their future teaching practice and the quality of within group cooperation. Preliminary results revealed individual differences concerning gender and anxiety as well as group differences in favour of heterogeneous groups.

From the review, it is clear that gender influences readiness to apply technology. Nevertheless, the studies reviewed thus far were all conducted

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outside the current research setting. The educational sectors and technological advancement levels of these settings cannot be said to be the same as that of the current study area. Thus, it may not be logical to apply their findings to the situation of the current study area. Considering this, there is the need to conduct a study to assess the relationship between gender and readiness to use ICT; hence, the current study.

Computer experience and readiness to use ICT

A number of studies have considered computer experience or training in ICT and how this influences one's readiness to use ICT. For instance, Chege (2014) conducted a study to investigate the factors influencing teachers' readiness to use ICT in teaching in public secondary schools in Gatundu North District, Kiambu County, Kenya. A major finding of the study was that computer training influences teachers' readiness because training makes the teachers acquire more knowledge. The study further established that the acquired knowledge makes them more confident and competent. A major recommendation of the study was that there is the need to have regular refresher courses in ICT as the findings revealed that not all teachers had good computer skills. Further, there is need to improve/install ICT infrastructure as lack of it negatively affected teachers readiness.

Also, Wanyoike (2015) investigated the preparedness of teachers in integrating Information and Communication Technologies (ICTs) in public primary schools in Thika West District, Kiambu County, Kenya. Using descriptive survey as the research design, the study findings indicated that the schools are barely equipped with ICT infrastructure though majority are connected to the national power grid, that both the teachers and the head

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teachers are very positive towards the use of ICT in schools, majority of the teachers had acquired basic computing skills without being formally trained in ICT with the majority of those who had formal training in ICT being trained at computer Packages level and at school level, the schools are taking little initiatives towards integrating ICTs in teaching and learning.

Further, Wachiuri (2015) examined the effects of teachers' demographic variables on implementation of Information Communication Technology in public secondary schools in Nyeri Central district, Kenya. The dependent variable was implementation of ICT and the independent variables were teachers' teaching experience and training. The researcher employed the descriptive survey design using 275 teachers working in 15 public secondary schools in Nyeri Central district. The major findings were that teachers' training in ICT and teaching experience are not consistent in affecting ICT implementation. Many schools especially in rural areas had not embraced ICT mainly because teachers lacked adequate training, had lower levels of education, and had negative attitude towards ICT implementation and this has led to schools facing major challenges in ICT implementation.

Therefore, Wachiuri (2015) recommends that public secondary schools should find a way to purchase more ICT facilities and support teachers' training on the use of ICT. The government needs to give more financial support through free education programme and donations to enhance ICT implementation in public secondary schools. Also, the teachers should change their attitude towards the use and implementation of ICT in the schools so as to create information technology culture in all aspects of teaching and learning.

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Furthermore, Kamaruddin, Abdullah, Idris, and Nawi (2017) investigated the level of ICT integration in teaching and learning in private preschools in Malaysia. A total of 61 teachers from 10 private preschools in the district of Mualim in the state of Perak Malaysia were randomly chosen in this survey research. The findings revealed that most of the teachers were knowledgeable about the educational ICT application. However, the findings revealed that the teachers' level of ICT integration is still at the low level. This is based on the results of a study that most of the teachers are normal users and ICT application was used for their own work rather than using it in their teaching and learning in the classroom. In addition, the findings indicated that teachers' awareness towards the importance of ICT in teaching and learning is not encouraging and this issue is related to the training provided, equipment and time constraints that hinder the integration of ICT.

After a thorough review of the empirical literature of previous studies from both outside and within Ghana, it worth noting that these studies were conducted in different setting either outside or in Ghana with different unique teacher characteristics and perception towards ICT integration in teaching. In addition, most of the studies focused on teachers in the senior high schools rather than teachers in the colleges of education. It is against this background that this study is set out to look at teachers' readiness to use ICT in teaching by examining factors, such as computer experience, among others, taking into account tutors at colleges of education in the Central Region of Ghana.

Conceptual Framework

The conceptual framework for the current study shows four (iv) independent variables – self-efficacy, age, gender, and computer experience –

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and a dependent variable, readiness to use ICT. These independent variables have been recognised in literature to have influence on how readiness of tutors to use ICT in teaching. The relationships between the variables are presented in Figure 1. The first arrow, labelled H_0^1, indicates the relationship between self-efficacy and readiness to use ICT. Likewise, the second path, H_0^2, shows the straight-line relationship between age and readiness to use ICT. The third path, H_0^3, indicates the effect of gender on readiness to use ICT. Finally, the fourth path, H_0^4, represents the relationship between computer experience and readiness to use ICT.

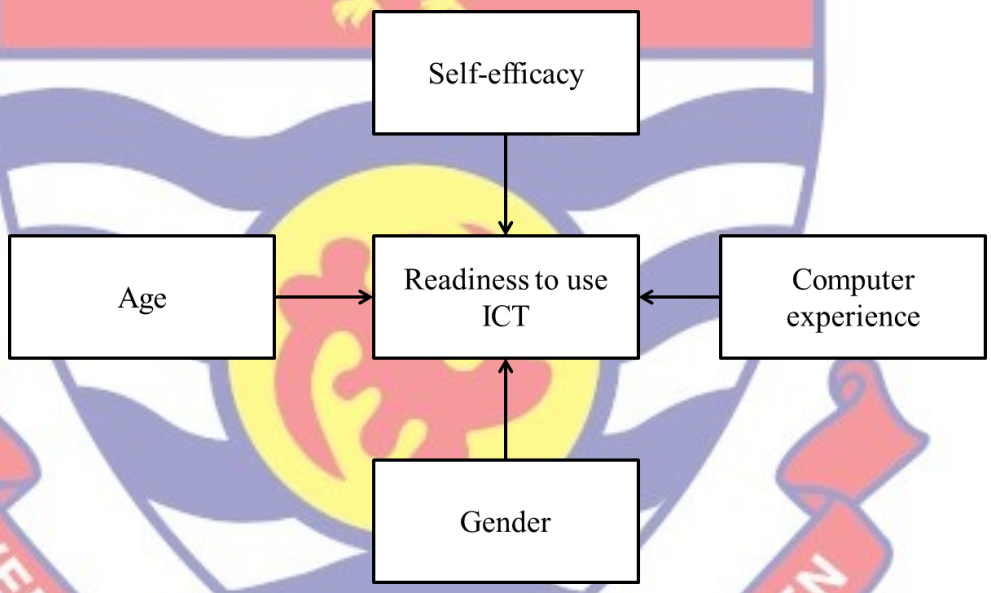

Figure 1*: Conceptual framework*

Source: Author's construct (2021)

Chapter Summary

The chapter discussed the underpinning theories of this study, concepts, empirical studies relating to the current study, and the conceptual framework. The theories employed were the (TPACK) theory developed by Mishra and Koehler (2006) and the self-efficacy theory by Bandura (1977). The related empirical studies reviewed showed that relationship exists

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between self-efficacy, age, gender, computer experience, and readiness to use ICT, as displayed in Figure 1. Finally, the researcher constructed a conceptual framework which defines the entire study and its direction.

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CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter presents the methods employed for this study. The chapter discusses the research philosophy, the research approach used, research design, the study area, population of the study, sampling procedure and sample size, data collection instruments, instrument reliability and validity, data collection procedure, data processing and analysis, ethical considerations, and chapter summary. These were done to help appropriately achieve the objectives of the study.

Research Philosophy

The study employed the positivist research philosophy. This view was employed because the study sought to analyse cause-effect relationship among study variables. According to the positivists, trustworthiness of facts is only achieved through observation and measurements (Collins, 2018; Ramanathan, 2015). It also makes sure that objectivity is upheld by limiting the researcher to only data collection and interpretation (Wilson, 2017). The researcher's interference is minimised, and the results obtained based on this philosophy are observable and quantifiable. These characteristics make the choice of the positivist philosophy more appropriate for this study considering the study hypotheses. Nevertheless, the results in positivism researches are limited to descriptions and lack deep insight into issues (Easterby-Smith, Thorpe, & Jackson, 2016).

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Research Design

With regards to research design, the explanatory design was used for this study. The design helps to explain the cause and occurrence of a given phenomenon (Saunders, Lewis, & Thornhill, 2019). According to Saunders et al., the explanatory design helps to account for relationships between or among variables. This design was employed because the researcher wanted to examine the effect of the factors – self-efficacy, age, gender, and computer experience – on the readiness of tutors to use ICT in teaching at the colleges of education. This design also has imbedded in it the descriptive techniques which seek to describe data sets before inferential statistics are performed (Saunders et al., 2019).

Also, considering time limitations, the study used the survey techniques employing the cross-sectional study design for data collection. The cross-sectional survey design has a number of advantages including being able to accommodate large sample sizes, and improvement in generalisability of study findings, among others (Hair, Risher, Sarstedt, & Ringle, 2019; Taylor, & Geldenhuys, 2019). Though the cross-sectional design has some limitations such as lack of ability to thoroughly examine and explain the events under study over a long period of time, the design is still appropriate for determining cause-effect relationships among variables, and saves time and cost (Taylor, & Geldenhuys, 2019).

Research Approach

The study utilised the quantitative research approach as it sought to use quantitative data to describe phenomena. Quantitative approach lays emphasis on measurement and data is analysed numerically to provide brief description

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(Creswell, 2013). The quantitative approach was employed for the reason that the data collected using questionnaires from the respondents could be analysed easily by utilising the standard statistical tools like means, standard deviation, percentages, and frequencies among others (Creswell, 2013). Similarly, quantitative approach has techniques, measures and designs that come up with numerical and quantifiable data (Garson, 2012; Creswell). The design also depends on the principles of verifiability of proof, substantiation and confirmation utilising the correct measurement of variables being studied.

Study Area

The current study area is the Central Region of Ghana. The region is one of the sixteen (16) administrative regions of Ghana. To the north, it is bordered by the Ashanti and the Eastern regions. It is bordered by the Western Region to the west, Greater Accra Region to the east, and to the south by the Gulf of Guinea. The region has twenty-two (22) districts including the regional capital, Cape Coast. The region is popularly known for its elite higher educational institutions and economy founded on the abundance of industrial minerals and tourism. The region boasts of many tourist attractions including the Cape Coast and Elmina castles, forts; national parks such as the Kakum National Park, among many others (Mensah, & Asamani, L. (2013).

The region has a population of about 2,201,863 people and a total land area of 9,826km^2, giving a population density of 220/km^2 (Creswell, 2013). The region is rated the 8th most populated region in Ghana, and also as the 8th in terms of land area (Creswell, 2013). The main economic activities of the people of Central Region are dominated by services followed by small scale mining and fishing (Creswell, 2013). Apart from the main economic activities

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as mentioned above, the local folks also engage in farming; notably, maize farming, and bee-keeping. The region also boasts of offshore crude oil resources at Saltpond. The Offshore Producing Company Limited and two joint venture partners operate this oil field (Creswell, 2013).

The Central Region is referred to as the hub of education in Ghana. The region has some of the best schools in the country. Notable among the institutions of higher learning include the University of Cape Coast, University of Education Winneba, Cape Coast Technical University, Ola College of Education, Foso College of Education and Komenda College Education. With regard to Senior High Schools, the region has over sixty public senior high schools some of which are known by the international community. The notable Senior High Schools are Adisadel College, Saint Augustine's College, Wesley Girls' High School, Holy Child School, Ghana National College, Mfantsipim School and Aggrey Memorial Senior High School.

The main focus of this study was the tutors at the three Colleges of Education – OLA College of Education, Komenda College of Education and Foso College of Education – within the region. The researcher focused on these three institutions because for the time being, they are the only public colleges of education in the Central Region, and to a considerable extent, the tutors at these institutions have access to technological gadgets; thus, it may be easy for them to understand the focus of this study.

Study Population

The accessible population for this study was 105 college tutors. This was made up of tutors from the three colleges of education in the Central

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Region of Ghana. At the time of this study, the region had only three public colleges of education. The main criterion was that the college must be a public college of education and located in the Central Region. The population distribution from the three colleges was as shown in Table 1. The table showed that OLA College of Education had a total of 32 full-time tutors; Komenda College of Education had 33 full-time tutors, and Foso College of Education had 40 full-time tutors.

Table 1: Population Distribution

School	Number of tutors
OLA College of Education	32
Komenda College of Education	33
Foso College of Education	40
Total	105

Source: Colleges Administration (2022)

Sample Size and Sampling Procedure

According to Mensah, and Asamani, (2013), sample size is the number of observations in a sample. It is commonly denoted by *n* or *N*. The study adopts the sample size formula for finite population proposed by Krejcie and Morgan (1970). With a population proportion of 50% and a confidence level of 95%, a sample size of 80 was appropriate for a finite or known accessible population of 105. Krejcie and Morgan argue that there is no need using sample size determination formula for 'known' population since the table has all the provisions one requires to arrive at the required sample size (Appendix A). All the three colleges in the region have similar characteristics; thereby, making unbiased selection easy.

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With respect to sampling method, the proportionate random sampling techniques were employed to select the 80 college tutors from the accessible population. The respondents in each of the three colleges were subsequently selected by proportionate random sampling techniques after applying the proportion methods. The sampling method was chosen due to the homogenous characteristics of subjects within each proportion (college). Also, the random sampling method allowed for tutors to have equal and independent chances of being selected from each of the three colleges, making it more scientific, accurate and representative. The sample size distribution is shown in Table.

Table 2: Sample Size Distribution

Colleges	Number of tutors	Proportion	Sample size
OLA College of Education	32	(32/105)*80	24
Komenda College of Education	33	(33/105)*80	25
Foso College of Education	40	(40/105)*80	31
Total	105		80

Source: Colleges Administration (2022)

Data Collection Instrument

The main tool used for primary data collection for this study was the structured questionnaire containing closed-ended questions. Questionnaires are usually used when it comes to collection of primary data for descriptive or explanatory research (Saunders et al., 2019). The questionnaire was employed because of its ability to collect original information from a large group of participants and also cost-saving to use. The tool was divided into four (4) sections – section A to section D. The sections were organised, respectively, under "Socio-Demographic Information – which contained items such as age

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and gender", "Self-Efficacy in ICT", "Computer Experience", and "Readiness to use ICT".

Section A of the questionnaire was to obtained responses on college tutors' socio-demographic information. Section B was to obtained responses from the participants on their ICT self-efficacy. Section C was to ascertained data from the participants on computer experience, and finally, Section D would ascertained information on tutors' readiness to use ICT in teaching. For sections B, C, and D, measurement items were adapted, respectively, from Fanni et al. (2013), Buckingham (2010), and Afarikumah (2014).

Section B contained eleven (11) self-efficacy items measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items on computer experience and readiness to use ICT in Sections C and D, respectively, were five (5) each and also measured on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Per this study, an average score of (Mean $\leq$ 3.0) indicates overall disagreement to a scale item, and a score of (Mean > 3.0) indicates overall agreement to a scale item. The maximum score a respondent could obtain on the self-efficacy variable scale was 55 (5×11) and a minimum of 11 (1×11). The maximum on the computer experience and readiness variable scales each was also 25 (5×5) and a minimum of 5 (1×5). Table 3 presents a summary of the structure of contents of the instrument.

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Table 3: Survey Instrument Construction

Research hypotheses	Variables	No. of items	Measurement	Sources
H_{01}: There is no statistically significant effect of self-efficacy on tutors' readiness to use ICT in teaching.	Self-efficacy (independent)	11(SE1-SE11)	5-point likert scale	Fanni et al. (2013)
H_{02}: There is no statistically significant effect of age on tutors' readiness to use ICT in teaching.	Age (independent)	5	1-up to 29yrs; 2-30-39yrs; 3-40-49yrs; 4-50-59yrs; 5-60+yrs	Author's transformation
H_{03}: There is no statistically significant effect of gender on tutors' readiness to use ICT in teaching.	Gender (independent)	1	Binary variable (male = 1; female = 0)	Author's transformation
H_{04}: There is no statistically significant effect of computer experience on tutors' readiness to use ICT in teaching.	Computer experience (independent)	5 (CE-CE5)	5-point likert scale	Buckingham (2010)
	Readiness (dependent)	5 (R1-R5)	5-point likert scale	Afarikumah (2014)

Source: Literature Review (2022)

Validity of Instrument

To ensure instrument validity, the initial draft of the instrument was subjected to face and content validation. The instrument was given to the supervisor to go through to scrutinise each of the items and make comments

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on their suitability, clarity, missing important information, and other errors, considering the main purpose of the study. All suggested corrections were effected. The researcher also took time to do a thorough reading to make sure that nothing was missing after effecting all corrections, and also all grammatical errors were corrected. Also, since the scales were adapted, it is obvious that they had already undergone many validation processes making it suitable for this study.

Reliability of Instrument

The instruments, after they were completed by the respondents, were collected and analysed. The Cronbach Alpha technique was used to measure the internal consistency and reliability of the items in the instrument. The Cronbach alpha-coefficient rages from 0 to 1. A scale is termed reliable and internally consistent if its Cronbach alpha-coefficient score is not less than 0.70 (Buckingham, 2010). Considering the fact that the scales were adapted from prior researchers (Fanni et al., 2013; Buckingham, 2010); Afarikumah, 2014), reliability coefficients might already have been computed. However, the researcher, again, computed reliability coefficients for the scales, and the results presented in Table 4.

Table 4: Reliability Test Results

Constructs	Cronbach's Alpha coefficients
Self-efficacy	0.935
Computer experience	0.711
Age	0.825
Gender	0.811
Readiness	0.702

Source: Field survey (2022)

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Data Collection Procedure

The data collection instrument was distributed to 80 tutors who were randomly selected from the three colleges of education. The questionnaires were accompanied with an introduction letter to each of the colleges to explain the purpose of collecting the data. The questionnaires were given, with assistance of colleagues who served as research assistants, to all the tutors making up the sample, and collection was done at a later date in order to afford them the time to candidly fill out the questionnaires. This was done so as not to put so much pressure on the tutors since they also had to take care of other duties. They were to respond to the questionnaires at their own convenient time, within, at most, one week. The entire data collection exercise was done in one week, from 17th November, 2021 to 24th November, 2021.

Data Processing and Analysis

Before analysing the data, there was cleaning of data to make sure the data were devoid of errors and needless omissions. Most importantly, as posited by Hair et al. (2019), attention was specifically focused on areas such as data coding, missing data management, and identification of outliers. This was done to ensure that the underlying statistical assumptions were not violated, and that data were consistent with relevant underpinning analytical and modeling assumptions. Data coding were done using numeric codes, following the procedures laid down by Saunders et al. (2019).

The researcher employed both descriptive and inferential statistics in the quantitative data analysis, where means, standard deviations, percentages, frequencies, Pearson product-moment correlation and linear multiple regression were used. The descriptive statistics such as the means, standard

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deviations, percentages, and frequencies were used to describe the distribution of responses to items on the Likert scales. Though the use of descriptive statistics did not directly lead to achieving the research objectives, it was prudent to describe and understand the distribution of the information being used for the analysis (Saunders et al., 2019).

Further, to achieve the four objectives of the study, and to test the hypotheses, the linear regression was computed. This was significant at ($t \geq 2.0$; $P \leq 0.05$). To examine the bivariate associations between variables and as a precursor to the linear regression, the Pearson product-moment correlation coefficient were computed. A correlation co-efficient of +1 represents a perfect positive correlation whilst a value of -1 indicates a perfect negative correlation. The SPSS 22 was used for data processing. The multilinear regression model specified below was used for the estimation.

Model specification

$$R = \alpha + \beta_1 SE + \beta_2 A + \beta_3 G + \beta_4 CE + \varepsilon \quad [1]$$

Where:

R = Readiness to use ICT in teaching

SE = Self-efficacy

A = Age

G = Gender

CE = Computer experience

α = Constant (the intercept, or point where $\beta_1, \beta_2, \beta_3, \beta_4 = 0$)

$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients

ε = Error term

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Ethical Considerations

In order to ensure strict compliance with ethical standards of research, a clause was introduced in the introductory paragraph of the questionnaire which assured the tutor respondents of anonymity and confidentiality. Specifically, respondents were informed that in the event that anything was published from this research, no information supplied would be identifiable to them since only aggregated data would be reported in this study. In addition, the time required for filling the questionnaire was mutually agreed between the respondents and the researcher, and respondents had the liberty to opt out of the survey at will without any consequences.

Chapter Summary

This chapter presented the research philosophy, the approach, the design, population of the study, sample size and sampling procedures, data collection instrument, validity and reliability of instrument, data collection procedures, data processing and analysis, and ethical considerations. The next chapter looks at the results and discussion, after which conclusions and recommendations were made.

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CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The study results and interpretation of the outcomes have been presented in this chapter. The chapter presents analysis of the demographic information of the college tutors involved in the study. Before the presentation and interpretation of main results of the study, the researcher presents the descriptive statistics of the data collected, according to the study variables. The researcher then presents the main analyses which focus on the study objectives and hypotheses. The summary of the results, discussion and conclusions on the hypotheses tested are also presented. Finally, the chapter summary was presented.

Socio-Demographic Information of Participants

This section covered the study participants' gender, age, educational background, and how long they have been with their institutions. The demographic information helps to contextualise the findings of the study and, also contributes to formulation of appropriate recommendations. Table 3 displays the results on the demographic information of the study participants.

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Table 5: Demographic Information of Participants

Variable	Indicators	Frequency	Percent
Gender	Male	51	63.8
	Female	29	36.2
Age	up to 29	3	3.8
	30-39	18	22.5
	40-49	25	31.3
	50-59	24	30.0
	60 and above	10	12.5
Education	Masters	77	96.2
	PhD	3	3.8
Work experience	Less than five years	36	45.0
	6- 10 years	24	30.0
	11-15 years	12	15.0
	above 15 years	8	10.0
	less than five years	36	45.0

Source: Field survey (2021) N = 80

Table 5 shows the socio-demographic information of the tutors in the colleges of education in Central Region who were involved in the study. From the Table, 51(63.8%) of the tutors were males whilst 29(36.2%) were females. This implies that both male and the female sex were fairly represented; though males were considerably more than their female counterparts, this difference was not huge enough to have any influence on the outcomes of this study. Also, most of the tutors in the three colleges of education in the Central Region were from the age 40 to 49 years, representing 25(31.3%) of the total participants; 24 of them, representing (30.0%), were between 50-59 years; eighteen (18) of the tutors, representing (22.5%), were between the ages 30 and 39years; 10 (12.5%) of the tutors were 60 years, while up to 29 years old tutors were three (3) in number, representing (3.8%).

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With regards to educational background, the minimum qualification of the tutors in the three colleges of education in the Central Region was masters. From the Table 5, 77 of the tutors, representing (96.2%) of the total participants, had a Master's degree; while the remaining three (3) of the tutors, representing (3.8%), had PhD; none of the tutors had either Bachelor's degree or other certificates as their highest qualification at the time of this study.

Further, concerning the work experience of the tutors who participated in this study, the results showed that 36 of the tutors, representing (45.0%), had worked with their respective colleges for less than five years; 24 of the tutors, representing (30.0%), had worked with the college for 6years to10 years; 12 tutors, representing (15.0%), had worked for 11 years to15 years; and finally, eight (8) of the tutors, representing (10.0%) had a worked with their respective colleges for more than 15 years.

Descriptive Statistics of Study Variables

Before addressing the main study objectives, the researcher conducted an analysis to obtain the college tutors' levels of ICT self-efficacy, computer experience, and readiness to use ICT in teaching. This was to enable the researcher explore the nature of the study's scale variables, as well as explore the distribution of the data collected. To achieve this, frequencies, percentages, means and standard deviations were computed. The results are displayed in Tables 6, 7, 8, and 9. Reporting was done based on agreement (agree plus strongly agree) and disagreement (disagree plus strongly disagree) to the statements in the tables.

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Table 6: Tutors' ICT Self-efficacy

Statements	SD		D		N		A		SA	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
I am able to use word processor to create, edit and format documents for specific purposes	4	5.0	8	10.0	9	11.3	23	28.8	36	45.0
I am able to use the internet to search for information and resources	0	0.0	2	2.5	10	12.5	34	42.5	34	42.5
I am able to use email for communication	3	3.8	10	12.5	11	13.8	25	31.3	31	38.8
I am able to use presentation software for classroom delivery	7	8.8	11	13.8	10	12.5	34	42.5	18	22.5
I am able to use spreadsheet to record data, compute simple calculations and represent data in the form of tables and graphs.	8	10.0	12	15.0	16	20.0	29	36.3	15	18.8
I am able to use graphic editors to create resources for teaching	11	13.8	24	30.0	11	13.8	27	33.8	7	8.8
I am able to use video editing software	12	15.0	26	32.5	8	10.0	27	33.8	7	8.8
I am able to use website editors to create and/or modify web pages.	20	25.0	24	30.0	9	11.3	21	26.3	6	7.5
I am able to use animation software to create animations.	24	30.0	26	32.5	7	8.8	17	21.3	6	7.5
I am able to use conferencing software for collaboration purposes.	18	22.5	13	16.3	11	13.8	29	36.3	9	11.3
I am able to use a learning management system to support teaching	9	11.3	15	18.8	14	17.5	34	42.5	8	10.0

Key: SD = Strongly disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly agree N = 80

Source: Field survey (2021)

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From the results in Table 6, majority: 59(73.8%) agreed that they are able to use word processor to create, edit and format documents for specific purposes whilst 12(15%) disagreed to this statement. However, the remaining 9 tutors, representing (11%), could not tell whether they are able to use word processor to create, edit and format documents for specific purposes. Also, 68(85%) agreed that they are able to use the internet to search for information and resources; two (2), representing (2.5%), disagreed to this statement; and 10(12.5%) were uncertain about this statement. Majority, 56(70.1%), also said they are able to use email for communication; 13(16.3%) and 11(13.8%) disagreed to and were uncertain about the statement, respectively. Also, 52(65%) agreed that they are able to use presentation software for classroom delivery; 18(22.6%) and 10(12.5%) disagreed to and were uncertain about the statement, respectively. 44(55.1%) agreed that they are able to use spreadsheet to record data, do simple calculations and represent data in the form of tables and graphs whiles 20(25%) and 16(20%) disagreed to and were uncertain about the statement, respectively.

Further, 34(42.6%) agreed that they are able to use graphic editors to create resources for teaching; 35(43.8%) and 11(13.8%) disagreed to and were uncertain about the statement, respectively. Also, 34(42.6%) agreed that they are able to use video editing software whiles 38(47.5%) and 8(10.0%) disagreed to and were uncertain about the statement, respectively. 27(33.8%) agreed that they are able to use website editors to create and/or modify web pages while 44(55%) and 9(11.3%) disagreed to and were uncertain about the statement, respectively. Again, 23(28.8%) agreed that they are able to use animation software to create animations whiles 50(62.5%) and 7(8.8%)

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disagreed to and were uncertain about the statement, respectively. 38(47.6%) believed they could use conferencing software for collaboration purposes whiles 31(38.8%) disagreed that they have the ability, and 11(13.8%) were not sure about their abilities, respectively. Finally, 42(52.5%) were of the view that they could use a learning management system to support teaching while 24(30.1%) and 14(17.5%) disagreed and were uncertain that they have the ability to use a learning management system, respectively. The next table, Table 7, presents descriptive statistics of computer experience of tutors.

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Table 7: Tutors' Computer Experience to use ICT

Statements	SD		D		N		A		SA	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Very high knowledge in computer use	27	33.8	28	35.0	16	20.0	6	7.5	3	3.8
I am able to operate basic computer functions and word processing applications	2	2.5	11	13.8	14	17.5	31	38.8	22	27.5
I am able to use office application (Word processing, spreadsheets, presentation software) for school assignment	3	3.8	13	16.3	22	27.5	26	32.5	16	20.0
I can use of internet and internet resources	3	3.8	2	2.5	5	6.3	58	72.5	12	15.0
I can participate in e-learning and online classes	2	2.5	3	3.8	4	5.0	40	50.0	31	38.8

Source: Field survey (2021) N = 80

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As can be seen from the results displayed in Table 7, majority, 55(68.8%), felt they do not have very high knowledge in computer use whilst 9(11.3%) and 16(20.0%) agreed to and were uncertain about the statement that they have very high knowledge in computer use, respectively. Also, 53(66.3%) believed that they are able to operate basic computer functions and word processing applications; 13 tutors, representing (16.3%), could not use the computer for these basic processes; and 14(17.5%) were uncertain about this statement. Majority of the tutors being 42(52.5%), also said they are able to use office application (Word processing, spreadsheets, presentation software) for school assignments; 16(20.1%) and 22(27.5%) did not seem to have the ability and uncertain, respectively. 70(87.5%) agreed that are able to use internet and internet resources whiles 5(6.3%) and 5(6.3%) disagreed to and were uncertain about the statement, respectively. Lastly, 71(88.5%) felt they could participate in e-learning and online classes whiles 5(6.3%) and 4(5%) could not and unsure about their abilities to do these, respectively. Table 8 presents the results on readiness to use ICT in teaching.

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Table 8: Readiness of Tutors to use ICT

Statements	SD		D		N		A		SA	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
I can participate in e-learning and online classes	2	2.5	3	3.8	4	5.0	40	50.0	31	38.8
I am ready to use ICT	12	15.0	19	23.8	11	13.8	24	30.0	14	17.5
I am not computer shy	13	16.3	33	41.3	26	32.5	5	6.3	3	3.8
I am very fast adopting new technology	5	6.3	7	8.8	15	18.8	40	50.0	13	16.3
I have access to computer	26	32.5	33	41.3	16	20.0	3	3.8	2	2.5
I feel good using computers	4	5.0	11	13.8	6	7.5	48	60.0	11	13.8

Source: Field survey (2021) N = 80

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From the results in Table 8, majority – 71(88.8%) – stated that they are able to participate in e-learning and online classes whilst 5(6.3%) disagreed to this statement. However, the remaining four (4) tutors, representing (5.0%), could not tell whether that they are able to participate in e-learning and online classes. Also, 38(47.5%) agreed that they are ready to use ICT; thirty-one (31), representing (38.8%), disagreed to this statement; and 11(38.8%) were uncertain about this statement. Again, 46(57.6%) believed that they are not computer shy whiles 8(10.1%) and 26(32.5%) agreed to and were uncertain about the statement, respectively. 51(66.3%) believed that they are very fast at adopting new technologies whiles 12(15.1%) and 15(18.8%) said they are not fast and were uncertain about their adoption abilities, respectively. Finally, 59(73.8%) agreed that they feel good using computers whiles 15(18.8%) and 6(7.5%) disagreed to and were uncertain about the statement, respectively. Table 9 finally presents mean and standard deviation scores on each of the three variables.

Table 9: Descriptive Statistics of Overall Study Variables

Variables	Mean	Std. Dev.	Min.	Max.
Self-efficacy	3.2852	0.95113	1.36	5.00
Computer experience	3.0000	0.67054	1.20	5.00
Readiness	2.9575	0.71632	1.00	4.80

Source: Field survey (2021) N = 80

From Table 9, self-efficacy showed the highest average score (M = 3.2852; SD = 0.95113). This was followed by computer experience (M = 3.0000; SD = 0.67054) and then readiness (M = 2.9575; SD = 0.71632). This implies that majority of the tutors have high self-confidence or capability

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(self-efficacy) when it comes to using ICT in teaching compared to their level of computer experience and readiness to use ICT in teaching. Also, the maximum scores recorded under self-efficacy, computer experience and readiness were (*Max.* = 5.0000), (*Max.* = 5.0000) and (*Max.* = 4.8000), respectively; minimum scores were (*Min.* = 1.3600), (*Min.* = 1.2000) and (*Min.* = 1.0000), respectively.

Drawing from Table 9, it could be seen that the mean values are, to some extent, lie in between the maximum values and the minimum values in the cases of self-efficacy, computer experience and readiness. This suggests that, the data used were fairly distributed; thus, issues of outliers were kept minimal. This also indicates that the tutor's self-efficacy, computer experience and readiness with regards to teaching with ICT are similar in nature among the tutors.

Correlation between Variables

The researcher sought to assess the correlation between tutors' self-efficacy, age, gender, computer experience and readiness to use ICT in teaching. Although this analysis was not in direct response to achieving the study objectives, it served as a precursor to the regression analysis required to achieve the study objectives and test the hypotheses formulated. The correlation coefficients from the computations are presented in Table 10.

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Table 10: Correlation Coefficients

Variables		Gender	Age	Self-efficacy	Computer experience	Readiness
Gender	Pearson Correlation	1	-.045	-.108	-.164	-.255
			.692	.342	.146	.023
Age in years	Pearson Correlation	-.045	1	-.146	.023	.051
		.692		.198	.839	.651
Self-efficacy	Pearson Correlation	-.108	-.146	1	-.190	.083
		.342	.198		.091	.465
Computer experience	Pearson Correlation	-.164	.023	-.190	1	.253
		.146	.839	.091		.024
Readiness	Pearson Correlation	-.255*	.051	.083	.253*	1
		.023	.651	.465	.024	

Source: Field survey (2021) N = 80

significant at the 0.05

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The results shown in Table 10 showed statistically insignificant weak negative relationship between gender and readiness (r = -0.255, P > 0.05). This result indicates that being a male or female has no relevant association with readiness in respect of using ICT in teaching at the colleges of education. Though the results showed a positively moderate relationship between age and readiness (r = 0.651, P > 0.05), this association was not significant. Further, self-efficacy showed a weak positive and insignificant relationship with readiness (r = 0.083, P > 0.05), implying that the tutors' self-confidence level does not necessarily translate into their readiness to use ICT in teaching. Finally, computer experience showed a moderate positive association with readiness (r = 0.253, P < 0.05), and the association was significant; implying that tutors' level of computer experience was directly correlated to their readiness to use ICT in teaching at the colleges.

Regression Results

The regression results presented outcomes on the effect of self-efficacy on readiness to use ICT, effect of age on readiness to use ICT, effect of gender on readiness to use ICT, and effect of computer experience on readiness to use ICT. Subsequently, the results were discussed, giving cognisance of the study objectives. The results, as shown in Table 11, present the regression coefficients, standard error, the F-statistic, t-statistics, significance level of the coefficient, the model summary (R, R-square, adjusted R-square), and the collinearity statistics which produced the variance inflation factor (VIF) and tolerance.

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Table 11: Regression Coefficients

	Unstd. Coeff.		Std. Coeff.			Collinearity Statistics	
Variables	*B*	*Std. Error*	*Beta*	*t-value*	*Sig*	*Tol.*	*VIF*
(Constant)	1.204	0.189		6.359	0.000		
Gender	0.234	0.062	0.176	3.779	0.000	0.853	1.173
Computer self-efficacy	0.241	0.049	0.262	4.896	0.000	0.647	1.545
Age	0.242	0.051	0.265	4.730	0.000	0.591	1.692
Computer experience	0.228	0.042	0.282	5.487	0.000	0.702	1.424
R	0.651						
R Squared	0.424						
Adjusted R Squared	0.417						
F-statistic (4, 311)	57.231						
P-value	0.000						
Dependent variable: Savings behaviour							

Source: Field survey (2021) N = 80

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The results in Table 11 show Adjusted R Squared value of 0.417 indicating that, collectively, self-efficacy, age, gender, and computer competence appeared to account for (41.7%) of variation in Central Region colleges of education tutors' readiness to use ICT in teaching. The remaining (58.3%) could be said to have been accounted for by factors other than those considered by this study. This implies that the tutors' readiness to use ICT in teaching at the colleges of education is, to a considerable extent, dependent on their ICT self-efficacy level, age, gender and their experience level in computing and ICT.

Further, the results revealed F-statistics of ($F = 57.231$, $P < 0.001$). This indicates that the entire model was significant at 0.05. This suggests the model can be relied on as far as production of valid and reliable results is concerned. It should also be pointed out that the independent variables in the model are devoid of issues of multicollinearity or collinearity, and this was reflected in values of Tolerance which were all greater than 0.1 but less than 1.0, and the Variance Inflation Factor (VIF) statistics which were also all greater than 1.0 but less than 10. Scholars recommend a minimum Tolerance value of 0.1 and a maximum of 1.0, and a minimum VIF of 1.0 and a maximum of 10 to state that there are no issues of multicollinearity (Hair, Anderson, Tatham, & William, 1995; Neter, Wasserman, & Kutner, 1989), and the results in Table 11 fell within these recommendations.

The effects of the individual independent variables – self-efficacy, age, gender and computer experience – on the dependent variable – readiness to use ICT in teaching – were discussed in the subsequent sections in the following order: Effect of self-efficacy on readiness to use ICT, effect of age

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on readiness to use ICT in teaching, effect of gender on readiness to use ICT in teaching, and effect of computer experience on readiness to use ICT in teaching.

Effect of self-efficacy on readiness to use ICT in teaching

The first study objective was to assess the effect of self-efficacy on college of education tutors' readiness to use ICT in teaching. This objective was to assess whether college tutors' self-efficacy is a significant predictor of their readiness to use ICT in teaching. To achieve this objective, the researcher conducted the linear regression analysis shown in Table 11. The results showed self-efficacy had a positive and statistically significant effect on readiness to use ICT in teaching by the tutors at the colleges of education in the Central Region ($\beta = 0.241$, $t = 4.896$, $P < 0.001$).

This suggests that holding all other factors constant, a unit change in self-efficacy level of college tutors will lead to a 0.241 change in their readiness to use ICT in teaching at their various colleges of education in the Central Region. Considering the direction of the relationship or the effect, it can be said that a unit increase or improvement in the self-efficacy level of college of education tutors in the Central Region will lead to 0.241-unit improvement in the readiness of the tutors to use ICT in their teaching.

This finding was not out of the ordinary, as high level of self-efficacy is likely to positively influence one's readiness to behave in a particular way – use of ICT in teaching. Thus, tutors with improved self-efficacy through self-confidence and capability are likely to demonstrate positive attitudes towards their use of technologies in their teaching deliveries and other engagements with students, compared to their counterparts who do not engage practices

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which do not improve self-confidence. This implies that tutors at the colleges of education in the Central Region who take their development serious, as far as self-efficacy is concerned, are likely to have their skills improved leading to high level of preparedness to use new technologies; thus, the more the 1tutor's self-efficacy and confidence levels in the use of ICT are improved, the more their readiness to use ICT in teaching improves.

Most of the prior studies the researcher came across found positive relationship between self-efficacy and readiness to use ICT in teaching and learning. This present finding is consistent with arguments advanced by Isaboke (2018) that self-efficacy significantly predicts teachers' preparedness for integration of technology into teaching and learning. This finding also supports the findings of Raphael and Mtebe (2017) who reported that self-efficacy beliefs – support, perceived ease of use, performance expectancy, and social influence – among pre-service teachers positively impacts their readiness towards integration of technologies into education. ELDaou (2016) also reported that self-efficacy influences teachers' intent to integrate ICT into curriculum activities. This finding further correlates with the results of Kale and Goh (2014) who stated self-efficacy is a significant predictor of teachers' likelihood to engage ICT in teaching activities in the classroom.

Additionally, this finding is in line with the position of the self-efficacy theory by Bandura (1977). According to the theory, self-efficacy influences individuals' behaviour in many ways, and thus it could be inferred that positive self-efficacy could lead to positive behaviour towards a given practice, such as tutors' readiness to use ICT in teaching at the colleges of education in the Central Region of Ghana. This means that positive self-

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efficacy among college tutors should be encouraged as it positively influences their readiness towards using ICT in their teaching.

Effect of age on readiness to use ICT in teaching

The second research objective sought to analyse the effect of age on readiness to use ICT in teaching. This objective was to assess whether age of tutors at the colleges of education in the Central Region has significant influence on their readiness to use ICT in teaching. To achieve this objective, the researcher employed the regression technique. The results, as shown in Table 11, present the regression coefficient which showed that age had a positive and statistically significant effect on readiness to use ICT in teaching at the college ($\beta = 0.242$, $t = 4.730$, $P < 0.001$).

This suggests that holding all other factors constant, a unit change in the age of college of education tutors will lead to 0.242 units change in their readiness to use ICT in teaching. Considering the direction of the effect, it suffices to say that a unit increase in the age of tutors will lead to 0.242 unit improvement in the readiness to use ICT in teaching by the tutors at the colleges of education in the Central Region of Ghana.

This finding was expected by the researcher as individuals who are old are likely to have a high level of preparedness towards accepting new challenges due to the accumulation of experience along the aging process. As the college tutors increase in age, there is the possibility that they might have come across many things that had contributed to their knowledge in technologies, among other things; thereby, helping them to take up practices leading to technology integration into teaching and learning at the colleges. Also, old age may expose tutors to the benefits associated with the use of ICT

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and thus propel them to readily incorporate these technologies into their teaching activities.

This present finding is consistent with that of Gloria and Abimbade (2013) who found that age has a significant influence on readiness of teachers to use technology in classroom teaching, and that the older the teachers, the higher the level of readiness to use technologies in teaching. However, this finding contradicts that of Sam-Amoah, and Frimpong, (2020), Venkatesh et al. (2003), Noor-Ul-Amin, (2013). These prior studies reported that as people age, it becomes difficult and challenging for them to adopt new things, and thus older teachers are likely to be less ready to use ICT in their teachers, compared to younger teacher counterparts. Though their findings might be evidence-based, it could be that the locale of their studies influenced the outcomes, as these settings cannot be said of being the same – in terms of level technological advancement and availability of technological gadgets - as that of the present study.

Effect of gender and savings behaviour

The third objective sought to assess the effect of gender on readiness to use ICT in teaching. This objective was basically purported to determine whether gender has significant effect on readiness of tutors to use technologies in their teaching at the colleges of education in the Central Region of Ghana. To achieve this objective, the researcher conducted a regression analysis. The results, as shown in Table 11, showed that gender had a positive and statistically significant effect on readiness to use ICT to teach at the colleges of education in the Central Region ($\beta = 0.234$, $t = 3.779$, $P < .001$). This suggests that, holding all other factors constant, if the reference group,

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females, is substituted into the equation, gender's effect on readiness of tutors to use ICT in teaching will be 1.204 – the value produced by constant.

On the other hand, with respect to males, the effect on readiness to use ICT increases by a 0.234 point (1.204 + 0.234). This implies a 0.234 difference between male and female tutors at the colleges of education in the Central Region, with respect to readiness to use ICT in teaching. This shows that being a male has more influence on readiness to use ICT in teaching, compared to being a female. In other words, male tutors at the colleges of education in the Central Region are more likely to engage ICT in their teaching practices than their female counterparts.

This finding was not surprising, as females are more likely to be less adventurous compared to males; thus, denying them the level of readiness they could have had if they were masculine. It could also be that due to the responsibilities – taking care of their families, among other – undertaken by many female tutors aside their teaching profession, they tend to pay less attention to the complexities associated with ICT and its use in teaching, as well as how powerful technological tools could be. Also, the male tutors are more likely to engage in learning new things or further their studies in many fields than their female counterparts; thus, making them improve their knowledge in ICT, hence, kicking up their readiness to use ICT in teaching compared to female tutors at the colleges.

This finding is consistent with the results of many prior studies which considered the relationship between gender and readiness to use ICT in teaching or the effect of gender on readiness to incorporate technology into teaching and learning, and found positive and statistically significant

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relationship between them (Natia, & Al-hassan, 2015; Alazzam et al., 2012; Kounenou et al., 2015). For instance, Natia and Al-hassan (2008) found that there was a positive and statistically significant effect of gender on readiness to use ICT, and that female teachers have lower ICT knowledge, skills and ICT applications compared to their male teacher counterparts Noor-Ul-Amin, (2013) also reported a significant positive effect of gender on readiness to use ICT in favour of male teachers. Similarly, Alazzam et al. (2012) and Kounenou et al. (2015) reported a significant gender difference in favour of males with respect to readiness to use ICT in teaching.

From the foregoing, it could be seen that gender is very important, and needs to be given attention when it comes to technology integration into education; especially, among tutors at the colleges of education in the Central Region of Ghana. Clearly, most of the prior studies reviewed supported the finding that gender has influence on readiness towards using ICT in teaching. However, with respect to the gender groups – male and female – males were found to have higher positive attitudes towards ICT integration into teaching and learning than their female counterparts. Meaning, being a male college tutor has greater effect on or improves one's readiness to use ICT than being a female college tutor.

Effect of computer experience on readiness to use ICT in teaching

The fourth research objective sought to analyse the effect of computer experience on readiness to use ICT in teaching. This objective was to assess whether computer experience level of college of education tutors at the colleges in the Central Region has significant effect on readiness to use ICT in teaching. To achieve this objective, the researcher conducted the linear

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regression analysis presented in Table 11. The results showed that computer experience has a positive and statistically significant effect on readiness of tutors at the colleges of education in the Central Region ($\beta = 0.228$, $t = 5.487$, $P < 0.001$).

This suggests that, holding all other factors constant, a unit change in computer experience level of tutors at the colleges of education in the Central Region will lead to 0.228 units change in level of readiness to use ICT in teaching. Considering the direction of the relationship or the effect, it suffices to say that a unit increase or improvement in computer experience will lead to 0.228 unit increase or improvement in the readiness of tutors at colleges of education in the Central Region to use ICT in teaching.

This finding was not unexpected by the researcher as high level of experience is likely to lead to increased levels of readiness to engage ICT in curriculum and teaching. Since experience is usually acquired through continuous training, this will lead to improvement in one's self-efficacy and hence preparedness towards adopting technologies in teaching and learning. This finding shows that tutors at the colleges of education in the Central Region could be prepared to incorporate technologies into teaching if they had the necessary computing experience.

The present finding supports that of Chege (2014). Chege found that computer training which leads to experience in computing significantly influences readiness to use ICT in teaching. Noor-Ul-Amin, (2013) also reported that formal training in ICT enhances teachers' readiness to integrate ICT into teaching. Further, Wachiuri (2015) stated that teachers with less experience in ICT are less likely to be ready to integrate ICT into teaching.

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These show that as experience in computer increases, readiness level to incorporate ICT into teaching improves. Thus, tutors at the colleges of education in the Central Region need to engage in more formal ICT training in order to enhance their level readiness to accept and incorporate ICT into their teaching activities.

Summary of Hypotheses Tested, Results, Decision, and Conclusion

This section presents a summary of the hypotheses tested, the outcomes, decisions, as well as the conclusions drawn. The summary of the tests are shown in Table 12.

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Table 12: Summary of Hypotheses Tested, Results and Conclusions

Hypotheses statement	Results *Regression coefficient*	Decision	Conclusions
$H^1{}_0$: There is no statistically significant effect of self-efficacy on tutors' readiness to use ICT in teaching.	*B* = 0.241 *P* < 0.05	$H^1{}_0$ rejected	Statistically significant positive effect of self-efficacy on tutors' readiness to use ICT in teaching.
$H^2{}_0$: There is no statistically significant effect of age on tutors' readiness to use ICT in teaching.	*B* = 0.242 *P* < 0.05	$H^2{}_0$ rejected	Statistically significant positive effect of age on tutors' readiness to use ICT in teaching.
$H^3{}_0$: There is no statistically significant effect of gender on tutors' readiness to use ICT in teaching.	*B* = 0.234 *P* < 0.05	$H^3{}_0$ rejected	Statistically significant positive effect of gender on tutors' readiness to use ICT in teaching.
$H^4{}_0$: There is no statistically significant effect of computer experience on tutors' readiness to use ICT in teaching.	*B* = 0.228 *P* < 0.05	$H^4{}_0$ rejected	Statistically significant positive effect of computer experience on tutors' readiness to use ICT in teaching.

Source: Field survey (2021) N = 80

As could be seen in Table 12, the p-value ($p < 0.05$) for the effect of self-efficacy on college tutors' readiness to use ICT in teaching was less than the alpha value ($\alpha = 0.05$); thus, the researcher rejected the null hypothesis

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that "*There is no statistically significant effect of self-efficacy on tutors' readiness to use ICT in teaching"* and concluded that there is a statistically significant positive effect of self-efficacy on readiness of tutors at the colleges of education in the Central Region of Ghana.

Similarly, the p-value ($p < 0.05$) for the effect of age on readiness to use ICT in teaching was below the alpha value ($\alpha = 0.05$); therefore, the researcher rejected the null hypothesis that "*There is no statistically significant effect of age on tutors' readiness to use ICT in teaching"* and concluded that there is a statistically significant positive effect of age on readiness of tutors at the colleges of education in the Central Region of Ghana.

Again, the p-value ($p < 0.05$) for the effect of gender on readiness to use ICT in teaching was smaller than the alpha value ($\alpha = 0.05$); therefore, the researcher rejected the null hypothesis that "*There is no statistically significant effect of gender on tutors' readiness to use ICT in teaching"* and concluded that there is a statistically significant positive effect of gender on readiness of tutors at the colleges of education in the Central Region of Ghana.

Finally, the p-value ($p < 0.05$) for the effect of computer experience on readiness to use ICT in teaching was smaller than the alpha value ($\alpha = 0.05$); thus, the researcher rejected the null hypothesis that "*There is no statistically significant effect of computer experience level on tutors' readiness to use ICT in teaching"* and concluded that there is a statistically significant positive effect of computer experience on readiness of tutors at the colleges of education in the Central Region of Ghana.

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Chapter Summary

This chapter presented the results and discussion of the study. Study participants' socio-demographics, descriptive statistics of the study variables and inferential statistics were also conducted. The findings showed that ICT self-efficacy has significant positive effect on tutors' readiness to use ICT in teaching, Also, age of college tutors showed a significantly positive effect on readiness to use ICT in teaching. Further, gender showed a significantly positive relationship with readiness to use ICT in teaching, with male college tutors having higher propensity to influence readiness to use ICT than their female college tutor counterparts. Finally, computer experience was revealed to have a significantly positive effect on tutors' readiness to use ICT in teaching. The subsequent chapter presents the summary, key findings, conclusions, recommendations and suggestions for further.

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CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter aims at presenting the summary, key findings, conclusions, recommendations, and suggestions for further studies. The summary briefly presents an overview of the study problem, objectives, research methods, as well as analytical techniques employed. Key findings section focuses on the summary of the major findings of the study. On the other hand, the conclusions summarise the overall outcomes and implications with respect to the findings of the study, taken cognisance of the research objectives. The recommendations also present specific remedies or suggestions to be applied by specific concerned individuals and institutions. The chapter closes with suggestions for further research.

Summary of Key Findings

Using ICT for teaching and learning purposes has been recognised worldwide; however, the adoption and readiness to use ICT in teaching and learning in developing countries of which Ghana is part, particularly in the educational institutions, remain very limited. It was against this background that the present study was carried out for the purpose of assessing the factors – self-efficacy, age, gender and computer experience – influencing the readiness of tutors at the colleges of education in the Central Region of Ghana to use ICT in teaching.

To achieve the foregoing purpose, the explanatory research design, in the light of the quantitative research approach, was employed. The proportionate random sampling techniques were used to select a sample of 80

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colleges of education tutors out of a population of 105 college tutors. The survey strategy was used to collect data from the study participants. All the 80 structured questionnaires were fully filed by the participants and were retrieved. The data collected were analysed using both descriptive and inferential statistical tools. Specifically, descriptive statistics tools of frequency, percentage, mean and standard deviation; inferential statistics, such as the Pearson product-moment correlation and regression techniques, were used to analyse the data and test the hypotheses formulated. The following section presents summary of key findings.

The first study objective analysed the effect of self-efficacy on readiness of tutors at colleges of education in the Central Region. The results revealed a significantly positive effect of self-efficacy on tutors' readiness to use ICT in teaching at their various colleges of education in the Central Region of Ghana. High levels of self-efficacy would positively improve the preparation level of tutors at the colleges of education in the Central Region to use ICT in teaching; thus, tutors at colleges of education in the Central Region should focus on improving their self-confidence and experience in the use of ICT in order to improve their readiness level to use ICT in teaching.

Further, the second objective examined the effect of age on tutors' readiness to use ICT in teaching at the colleges of education in the Central Region of Ghana. The findings showed that age significantly and positively affect college tutors' readiness to use ICT in teaching. This says that as the colleges of education tutors grow in age, their tendency to show readiness to adopt technologies in teaching and learning also increases.

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The third research objective sought to assess the effect of gender on the readiness of tutors at the colleges of education in the Central Region to use ICT in teaching. The findings showed that gender has significant positive effect on college of education tutors' readiness to use ICT in teaching, with male college of education tutors having higher propensity to influence readiness to use ICT in teaching than their female college of education tutor counterparts. This is to say that, averagely, male college tutors at the colleges of education in the Central Region of Ghana are more likely to show readiness to use ICT in teaching than their female college tutor counterparts.

Finally, the fourth research objective was to determine the effect of computer experience on readiness of tutors at the colleges of education in the Central Region. After the analysis, computer experience was revealed to have a significantly positive effect on tutors' readiness to use ICT in teaching at the colleges of education in the Central Region, suggesting that an increased level of computing experience makes the tutors at the colleges of education in the Central Region to engage in ICT-related activities that positively influence their readiness towards using ICT in teaching.

Conclusions

Considering the findings of the study, the following conclusions could be drawn based on the study objectives. The first objective analysed the effect of self-efficacy on tutors' readiness to use ICT in teaching at the colleges of education in the Central Region. The result showed a significant positive effect of self-efficacy on tutors' readiness to use ICT in teaching. It can then be concluded that improved self-efficacy leads to improved readiness to include ICT in teaching, implying that to achieve technology integration

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into education, tutors at the colleges of education should engage in self-efficacy development activities.

Further, the second study objective determined the effect of age on college tutors' readiness to use ICT in teaching, and the findings revealed that age of college tutors significantly and positively influences their readiness to use ICT in teaching at the colleges of education in the Central Region. This implies that the older the college tutors are, in terms of readiness to use ICT in teaching, the more likely they are to be ready to accept and use technologies in education. Thus, the higher a tutor's age, the higher their readiness level to incorporate ICT into teaching.

Furthermore, the third objective aimed at assessing the effect of gender on readiness to use ICT in teaching. The results showed that gender has effect on college tutors' readiness to use ICT in teaching, with male tutors having higher influence than their female counterparts. This may imply that if female tutors at the colleges of education in the Central Region of Ghana learn from their male tutor counterparts in terms of ICT training, they will be able to improve their experience level and hence improve their readiness to use ICT in teaching.

Finally, the fourth study objective sought to examine the effect of computer experience on readiness to use ICT in teaching by tutors at the colleges of education in the Central Region of Ghana. The results showed that computer experience has a significantly positive influence on tutors' readiness to use ICT in teaching. This implies that when college tutors undertake formal training in ICT use, they are likely to garner enough technology experience

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leading to ICT incorporation into teaching and learning activities at the colleges of education in the Central Region of Ghana.

Recommendations

Having considered the key findings and the conclusions drawn, it was imperative to make recommendations which might possibly influence overall incorporation of ICT into the Ghanaian education system; specifically, leading to curbing of issues that might possibly influence policymaking. These recommendations focused on self-efficacy, age, gender, and computer experience, giving cognisance of readiness to use ICT in teaching. The following recommendations were made.

1. First of all, leadership of the colleges of education within the Central Region of Ghana, at regular intervals, should organise seminars which seek to encourage both male and female college tutors to use computers and related gadgets in their teaching activities. Specifically, female college tutors should be given attention to enable them get prepared for the integration of ICT into their teaching activities, as this would also improve their self-efficacy level.
2. Secondly, it is recommended that management at the colleges of education should encourage the older college tutors who are knowledgeable and experienced in technology and its use in teaching to train the young tutors.
3. Thirdly, leadership of the various colleges should make available to the tutors computers and internet access, among others, as these will encourage even those who do not have personal computers to take

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advantage and learn to prepare them for adoption of a computerised education system.

4. Finally, the study recommends that the Ministry of Education formulate policies which make the use of these devices core aspect of teaching delivery at the colleges of education.

Suggestions for Further Studies

Considering the gaps identified in literature and the limitation of the present study, a number of topics could be considered for further studies. For example, from the literature reviewed, it was revealed that no study has yet been conducted on factors influencing readiness of college tutors to use ICT in Ghana. Since the present study has considered college tutors, a further study can investigate the factors influencing the readiness of university teachers to use ICT in teaching.

Also, a more longitudinal interpretivist philosophical position may be employed to provide further insight and explanations of the factors that influence tutors' readiness to use ICT in teaching. This study used regression techniques to analyse the effects of the factors on readiness to use ICT in teaching. Future research could use other analytical tools such as the Structural Equation Modelling to analyse such effects, moderating the effect of educational level of the college tutors.

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APPENDICES

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APPENDIX A

SAMPLE SIZE DETERMINATION TABLE

TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size
"S" is sample size.

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APPENDIX B

QUESTIONNAIRE

UNIVERSITY OF CAPE COAST

[DEPARTMENT OF MATHEMATICS AND ICT EDUCATION]

QUESTIONNAIRE FOR TUTORS

EFFECT OF COMPUTER SELF-EFFICACY, AGE, GENDER AND COMPUTER EXPERIENCE ON READINESS IN TEACHING WITH ICTs AMONG COLLEGE OF EDUCATION TUTORS IN THE CENTRAL REGION OF GHANA

This questionnaire has been developed to assess *computer self-efficacy, age, gender and computer experience on readiness in teaching with ICTS among college of education tutors in the central region of Ghana*. Please, be informed that this study is purely academic and that all information obtained shall be kept with utmost confidentiality. The outcome of this research may be used for academic and general purposes such as research reports, conference papers or books.

Thank you in advance for your co-operation.

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SECTION A: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENT

A1 **Indicate your gender**	A2 **How old are you?**	A4 **What is/was your highest level of educational completed?**	**A5** **How long have you been in the college?**
a. Male { } b. Female { }	Indicate your Age a. up to 29 { } b. 30 – 39 { } c. 40 – 49 { } d. 50 – 59 { } e. 60 and above { }	a. Diploma { } b. B. ED { } c. BA/BSC with PGDE { } d. Masters { } e. PhD { }	a. Less than 5 yrs…… 1 b. 6 – 10 yrs…… .2 c. 11- 15 yrs…….3 d. Above 15 yrs…….4

SECTION B: LEVEL OF COMPUTER SELF-EFFICACY AMONG TUTORS

Using the scale of 1 to 5 below (where 1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5= strongly agree) Please rate the extent to which you agree or disagree with each the statement.

	STATEMENT	**1**	**2**	**3**	**4**	**5**
Basic Computer Skills (BCS)						
BCS1	I am able to use word processor to create, edit and format documents for specific purposes					

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BCS2	I am able to use the internet to search for information and resources					
BCS3	I am able to use email for communication					
BCS4	I am able to use presentation software for classroom delivery					
BCS5	I am able to use spreadsheet to record data, compute simple calculations and represent data in the form of tables and graphs.					
Media Related Skills (MRS)						
MRS1	I am able to use graphic editors to create resources for teaching					
MRS2	I am able to use video editing software					
MRS3	I am able to use website editors to create and/or modify web pages.					
MRS4	I am able to use animation software to create animations.					
Web Based Skills (WBS)						
WBS1	I am able to use conferencing software for collaboration purposes.					
WBS2	I am able to use a learning management system to support teaching					

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SECTION: C COMPUTER EXPERIENCE AMONG THE TUTORS.

Using the scale of 1 to 5 below (where 1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5= strongly agree) Please rate the extent to which you agree or disagree with each the statement.

	STATEMENT	1	2	3	4	5
CE1	I very high knowledge in computer use					
CE2	I am able to operate basic computer functions and word processing applications.					
CE3	I am able to use office application (Word processing, spreadsheets, presentation software) for school assignment.					
CE4	I can use of internet and internet resources.					
CE5	I can participate in e-learning and online classes					

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SECTION D: LEVEL OF TUTORS READINESS TO USE ICT IN TEACHING

Using the scale of 1 to 5 below (where 1=strongly disagree, 2= disagree, 3=somewhat agree, 4= agree, 5= strongly agree) Please rate the extent to which you agree or disagree with the statement.

	STATEMENT	**1**	**2**	**3**	**4**	**5**
R1	I can participate in e-learning and online classes.					
R2	I am ready to use ICT.					
R3	I am not computer shy.					
R4	I am very fast adopting new technology.					
R5	I have access to computer.					
R6	I feel good using computers.					

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