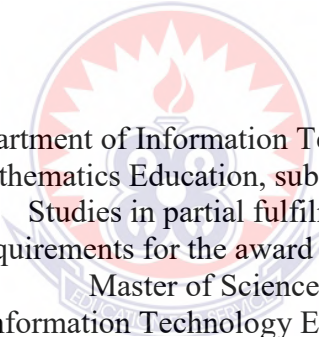


UNIVERSITY OF EDUCATION, WINNEBA

INVESTIGATING THE EXTENT TO WHICH INFORMATION AND
COMMUNICATION TECHNOLOGY TOOLS DISTRACT TEACHING AND
LEARNING IN ASOKORE MANPONG DISTRICT.

MOSES NSIAH

7191040022



A dissertation in the Department of Information Technology Education, Faculty of Applied Sciences and Mathematics Education, submitted to the School of Graduate Studies in partial fulfilment of the requirements for the award of the degree of Master of Science (Information Technology Education) in the University of Education, Winneba.

APRIL, 2022

DECLARATIONS

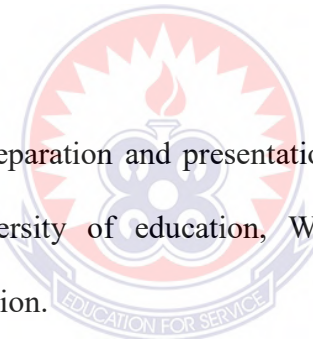
STUDENT'S DECLARATION

I, Moses Nsiah, declare that this thesis is wholly my own original work, with the exception of citations and references from existing publications that have all been identified and officially acknowledged, and that it has not been submitted, in part or whole, for another degree elsewhere.

SIGNATURE.....

DATE.....

I hereby declare that the preparation and presentation of this work was supervised in conformity with the University of education, Winneba's requirements for thesis /dissertation/project supervision.



(DR. FRANCIS O. BOATENG)

SIGNATURE.....

DATE.....

DEDICATION

I dedicate this work to my late Brother, George Akuoko Nsiah and the entire KAN family.



ACKNOWLEDGEMENT

I am grateful to Almighty God for providing me with strength, wisdom, education, and most importantly, excellent health during the program, especially during difficult periods such as the covid-19 pandemic. I would want to convey my heartfelt gratitude to my supervisor, Dr. Francis O. Boateng, for his advice and support throughout the project. Your inspiration for the work was remarkable. My gratitude also extends to all of the Department of Information Technology Education's lecturers for their invaluable contributions and information taught to me in a variety of ways. I'm also grateful to all of the people who participated in the data collecting and to my classmates in the MSc. Information Technology Education 2021, year group for their help and comments on this project. I would want to express my gratitude for your suggestions and encouragements, as well as your phone calls and support during the program.

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ABSTRACT

Information and communication technology tools can help to improve teaching and learning process and also have potential to detract teaching and learning process if proper safeguards are not in place. The purpose of this study was to investigate the extent to which Information and Communication Technology (ICT) tools promote or distract teaching and learning process in Asokore Mampong District. The study focused on three main variables which were: the extent to which ICT tools promotes teaching and learning process, the extent to which ICT tools distract teaching and learning process and the measures that can be put in place to control the distraction cause by ICT tools during teaching and learning process. A descriptive survey method was adopted for the study, questionnaires and field observations were used as data collection instruments. Most participants were with the view that if it is done in well-structured and effective format, information and communication technology tools can improve teaching and learning process. However, participants also indicated that Information and communication technology tools can serves as a distraction to teaching and learning process. Most participants concorded that, appropriate measures can be put in place to improve teaching and learning process using of Information and communication technology tools.

GLOSSARY

ICT – Information and communication Technology

OECD -Organization for Economic Co-operation and development

BECTA-British Educational Communications and Technology Agency

Eurobarometer- is a collection of cross-country public opinion surveys conducted regularly on behalf of the EU Institutions since 1974.

LDC- Least Developed Countries

IMF-International Monetary Fund

ITU-International Telecommunications Union

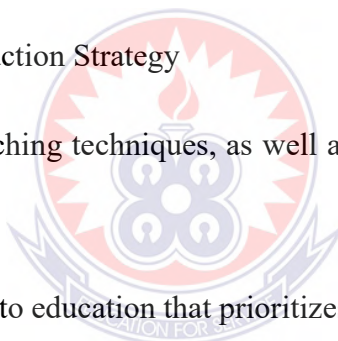
GPRS-Ghana Poverty Reduction Strategy

Pedagogy- the study of teaching techniques, as well as educational goals and strategies for achieving them.

Instructivists- An approach to education that prioritizes the teacher as an authority figure who directs what needs to be learnt and how will be learned

Constructivist- is the school of thought that asserts that students actively create knowledge as opposed to merely passively absorbing it.

ICTs- Information and communication technologies



CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Information and Communication Technology (ICT) consist of Information technology, enterprise software, audio-visual system, middleware which user can access, store, transmit and modify the information as required. The exponential growth of internet users, the invention of modern communication devices, significant development in cloud and grid computing etc. have helped ICT to flourish as a rapid developed technological field in the last decade. Mass use of information and communication technology with proper guidance helps a nation to create an information-rich society and helps in supporting livelihoods (Pramanik et al., 2017).

Information and communication technology (ICT) are the backbone of the advanced world's success story in many aspects of their economy today (Macaulay et al., 2020). This resulted from careful planning and integration of information and communication technology into their educational systems. As a result of proper integration of information and communication technology into their educational systems, countries such as the United States, the United Kingdom, China, and other developed countries have progressed over the last decades (Pelgrum, 2010).

According to the Redecker et al (2010), ICT has been credited with assisting in the creation of a "Single European Information Space." The concept has been successfully implemented in many areas of society (e-government, e-commerce, and so on), but not in education.

The commercial model of ICT integration is founded on the logic of the industrial production economy rather than educational goals emphasizing quality of learning,

human contact, and the social nature of learning. It includes the idea of mass production of commodities and economies of scale. This means that educational services must become more competitive, accessible, and inexpensive by utilizing digitalized high-quality learning content and services that can be distributed across Europe over broadband communication networks. There appears to be ongoing uncertainty about the goals, methodologies, and implications of ICT tools integration in education, which has been linked to educational culture as well as the growth of global educational ICT market places (Kumpulainen, 2006).

In Europe, effective use of ICT tools in school education is seen as a critical aspect in raising educational quality. The European Commission's eLearning Action Plan encourages the use of ICT in learning processes, with one of its goals being to "increase the quality of learning by simplifying access to materials and services, as well as distant sharing and cooperation (González-Sanmamed, et al, 2017)

Over the last two decades, the integration of information and communication technology (ICT) tools in education has been one of the most important components of educational progress in Europe and other industrialized countries. The majority of countries in the Organization for Economic Co-operation and development (OECD) have said in their strategic plans that information technology would be the driving force for the future development of their societies (Kumpulainen, 2006).

In most industrialized countries, such as the United Kingdom, schools have integrated ICT into their curricula and display a high degree of effective and acceptable use to assist teaching and learning (Voogt & Roblin, 2012).

The United Kingdom has a body that checks the impact of ICT on education according to Balanskat, et al. (2006), in terms of ICT effect evidence, UK studies provide the most

comprehensive picture. In recent years, numerous studies have been conducted to assess the influence of ICT regularly, with the majority of them being published by BECTA, the British Educational Communications and Technology Agency, in its study domain. Evaluations of government ICT projects, evidence of the benefits of developing technologies, and the impact of ICT on education are among them.

With good policies in place, the Europeans can determine the percentage of teachers who are using ICT in their lessons according to Balanskat, et al (2006), the Eurobarometer Benchmarking survey identifies key aspects of current ICT use by European teachers. Teachers who teach science, mathematics, and computer science (22%) and teachers who work in vocational education (23%), are the most frequent users of computers in the classroom (in more than 50 per cent of the lessons). In the midfield, this compared to only 5% of literature and language instructors, as well as those in primary school (17%), humanities and social science (13%), and physical and artist/crafts education (16%).

This achievement is possible to proper investment in the ICT according to Tedla (2012), the rapid advancement of technology and economic development around the world necessitates a significant investment in education. The situation is not the same in developing countries that have limited resources although they have policies for the integration of ICT in their educational system according to Kumpulainen (2006) most developing countries, particularly the Least Developed Countries (LDCs), have already included ICT into their national education goals and poverty reduction efforts. Education, research, and innovation, as well as information and communication technology, appear to be at the centre of socioeconomic progress.

According to Ngwenyama and Morawczynski (2009), Information and communication technology (ICT) has been pushed as a growth engine that has the potential to drastically improve the economic, political, cultural, and social situations of many developing nation-states since the early 1990s.

Their ambitious plan calls for developing-country governments to devote enormous financial and human resources to expand ICT infrastructure. International organizations such as the United Nations (UN), the World Bank, the International Monetary Fund (IMF), and the International Telecommunications Union (ITU) have pushed developing-country governments to develop technology policies and encourage the development of telecommunications infrastructure (Ngwenyama and Morawczynski, 2009).

According to Mensah (2017), Africa has also witnessed the development of these ICTs in various sectors including education. These ICTs are increasingly becoming prevalent in our society, and consequently, they entail new conditions and opportunities for the teaching and learning processes. On the one hand, the new generation of students enters the tertiary level of education with a strong command of competencies to communicate via ICTs, a situation that facilitates the introduction of such resources as learning supports.

Information and Communications Technology is not a cure for all educational dilemmas, even though today technologies are obligatory tools (Kinaanath, 2013). According to Farrell et al (2007), the African countries studied have a wide range of ICT policies in place for education. South Africa is certainly unique in terms of its ability to advance its ICT agenda. Several North African countries that have both resources and high bandwidth access from Europe have made significant progress in executing their ICT goals. Another category making significant progress in those countries that are steadily

moving towards sustainable economies (for example, Mauritius, Ghana, and Botswana). The largest group is made up of nations that are transitioning from a long period of conflict and economic insecurity and are looking to ICT applications to help them manage a variety of difficulties, including the development of human resource capability.

With the progress of information, technological advancements, and globalization challenges, the profession of "teaching" has become a central figure and one of the most complex, requiring new planning and technological adaptation to cope with cultural dynamism. Teachers are implementers; thus, they must learn and incorporate new technologies into their lesson plans. Governments in East African countries, as well as elsewhere, are more aware than ever of the importance of information and communication technology (ICT) in a nation's development in a variety of areas, including educational development, economic growth, social awareness, cultural enrichment, and political leadership (Tedla, 2012).

To meet the international bodies' objectives for ICT integration in our economies, Africans must look at ICT in education, as well as teachers, who are the agents of change according to Tedla (2012), Teachers do act as change agents in the process of teaching and learning. Teachers' actions have a far-reaching impact on a school's performance.

Teachers are in charge of the teaching-learning process and are at the core of curricular changes. According to Boo and Cha (2011), today humanity is in the midst of a transition to a Knowledge Society, in which knowledge will play a critical role as a key resource for long-term growth. So, most of the current economic and social forces of the human society are mobilized around knowledge-intensive fields, including education in which, despite the ubiquitous ICT intrusion, the human factor priority becomes the main

feature, as only a human being is the principal carrier, generator and user of knowledge. The dynamics of Knowledge Society development depends on many factors, but one of the critical ones is the level of teachers' competencies and their professionalism because the Teacher (to a very wide extent) is the main provider of general literacy and culture, as well as of knowledge and skills related to the key competencies of the Knowledge Society.

According to Kumar (2008), the lack of teachers equipped with ICT skills is another problem for the use of ICT in education. In the institutes where ICT is going to be integrated into education, first of all, their teachers must be well trained in ICT tools in education. Before going to teach to students, teachers must know how and when to use ICT tools to achieve particular purposes.

According to Kumar (2008), the traditional way of teaching and learning process can be made more effective and interesting by using information and communication technologies. For example, when a teacher uses audio, video, or PowerPoint presentations in his/her lecture, the whole class becomes more attentive to the lecture. Such activities also help students to understand things easily.

One of the things that makes teaching so difficult is that it takes place in a setting that reflects and sometimes accentuates – some of society's most profound and troubling challenges. Adding computers to the equation complicates things even further. Educators must identify and be prepared to work in this context, with all of its nuances and complexities, to successfully integrate technology into their teaching (Jamieson-proctor and Burnett, 2006).

According to Tochukwu and TansuHocanın (2017), learners are said to be the central focus of the thought of establishing an institution for learning, and these contemporary

students are almost skilled at the usage of certain ICT tools even before the entrance of certain colleges or institutions. It is, therefore, very necessary to make ready those basic ICT tools which should be adopted by such learners on the entrance of such colleges or institutions. For this reason, it will be a problem if these students' awareness, attitudes, thoughts, skills, motivational factors and ease of use is not determined at the initial stage before establishing a school, employing an instructor, building a curriculum, preparing an instructional material or course objectives and further evaluating of the entire teaching and learning processes. ICT's importance is very glaring from the educational approach.

ICT as a tool can facilitate the teaching and learning process by enhancing both students' and teachers' levels of understanding, but the same ICT tools can be a distraction to the teaching and learning process.

According to Tochukwu and TansuHocannin (2017), students, and sometimes teachers, can get hooked on the technology aspect, rather than the subject content. Facebook, Twitter, Youtube, Instagram and other social media networking sites can be a distraction to living and learning in the real world. Advertisers take advantage of the big data that exists in the interface of users of these networking sites and market their various goods and services to the users. Educational institutions are not excepted from this marketing effort of the big data houses such as Google, Microsoft, Yahoo etc. There are services geared toward the institutions offering them free Internet hosting and data storage space in the cloud in exchange for access to their data available for analysis and advertising.

Ghana as a country has its ICT policy according to Martey (2004), Ghana's government has placed a major emphasis on the role of information and communication technology (ICT) in the country's economy. The Ghana Poverty Reduction Strategy Paper (GPRS

I&II) and the Education Strategic Plan 2003-2015 both recommend that ICT can be used to reach out to the poor in Ghana. Ghana has made remarkable progress in ICT infrastructure development as one of the first African countries to liberalize its telecommunications market. However, like many other African countries, Ghana's ICT revolution has left the Internet and computing behind. There are also considerable disparities in access to ICTs between urban and rural areas.

It is widely understood that for Ghana to make significant success in its socio-economic development efforts, significant resources must be dedicated to enhancing educational delivery. Information and communication technologies (ICTs) have been identified as a significant priority area under the present Education Reforms for expanding access to education to a greater part of the population and literacy education for facilitating educational delivery and training at all levels (Goldrick-Rab, 2010).

According to Tashman, (2015), learners and teachers will be able to engage in new modes of information acquisition and analysis as a result of the implementation of ICT in education. ICT will increase equitable access to education and improve the quality of education delivery." and that: "The government hopes that by deploying ICT in education, the culture and practice of traditional memory-based learning will be transformed into education that stimulates the thinking and creativity required to meet the challenges of the twenty-first century."

According to Goldrick-Rab (2010), Integrating ICTs into educational planning and delivery can be a difficult process, resulting in even more inequity and problems in the system. These could include a lack of focus on educational goals, with ICTs being viewed as the goal in and of itself rather than a means (tools) to an end. To that aim, the

ICT in Education Policy will seek to implement solutions as part of a coordinated end-to-end system that considers the combined inputs of educational goals.

Despite the growing momentum of ICT in Education efforts in Ghana, the country's national policy environment lacks clear guidelines. ICT in education efforts currently appear to be operating in silos rather than as part of a national strategy. While the policy gives enough attention to capacity building and development, it does not appear that specialized frameworks for ICT integration for teachers exist.

For the government to fulfil its policy on the integration of ICT tools in education, it introduces two major initiatives that are: one teacher one laptop and Wi-Fi connections in cycle institutions in the year 2021. The objectives of these policies according to the Vice President, Dr Mahamudu Bawumia, are aimed at bridging the ICT gap between teachers in urban areas and their colleagues in rural areas.

Asokore Manpong District is one of the numerous districts in Ghana, with many schools and this study, therefore, seeks to investigate schools from the districts to ascertain if ICT tools are a distraction in the teaching and learning process or help improve the teaching and learning process in the district.

1.2 Problem Statement

According to Suryani (2010), the advancement of ICT is progressively displacing traditional educational methods. Online communication is replacing face-to-face classroom interaction, traditional white or blackboards are being replaced by interactive whiteboards, and books or printed resources are being replaced by online resources. Technology is thought to be capable of bringing our education system out of the dark ages and into the light. This is because implementing ICT in classrooms has the potential to provide certain benefits. However, to get such rewards, we must first

conquer great obstacles. These challenges may differ from one school to the next, from one location to the next, and from one country to the next.

According to Steiner and Mendelovitch (2017), when educators fail to engage in the knowledge revolution, they become a prisoner of the classic paradigms that have shaped the traditional school. Thus, a situation has been created in which reality continues to change, and schools, which are supposed to prepare their graduates for a new, open age, continue to operate as closed systems. To be at the educational forefront requires a significant change in the concept of the role of the teacher and the teacher's function.

There has been a lot of research on how information and communication technology can improve the teaching and learning process, others have also researched how information and communication technology tools distract the teaching and learning process, however, there has not been clear research linking the two together and proposing ideas on how to reduce the distraction of information and communication technology tools in teaching and learning process. This research will look into how ICT tools improve teaching and learning as well as how they can distract students during the teaching and learning process and measures to reduce the distraction that ICT causes during the teaching and learning process.

1.3 Purpose of the Study

The study seeks to find out if information and communication technological tools are distracting teaching and learning process or otherwise in the Asokore Mampong District.

The specific objectives of the study are, therefore:

1. To determine the extent to which the use of Information and communication technology tools promotes the teaching and learning process.
2. To determine the extent to which the use of Information and communication technology tools distracts the teaching and learning process.
3. To identify measures that could be used to improve the teaching and learning process using information and communication technology tools.

1.4 Research Questions

The research topics to be investigated were derived from the objectives.

1. To what extent does information and communication technology tools promote the teaching and learning process?
2. To what degree does information and communication technology tools distract the teaching and learning process?
3. iii. What measures can be put in place to improve the teaching and learning process using information and communication technology tools.

1.5 Hypotheses

The study was guided by the following hypotheses

1. ICT tools does not improve teaching and learning process in basic schools at Asokore Mampong District

2. ICT tools does not interfere with the teaching and learning process in basic schools at Asokore Manpong District.

1.6 Significance of the Study

Some teachers have complained over the years that the usage of ICT tools in the classroom is a contributing element to students' declining performance. This study will help to determine whether or not the use of ICT tools distracts students, resulting in students performing poorly in their academics, or whether or not the use of ICT tools contributes to students' knowledge base, thereby boosting their performance. This research will also add knowledge to computer education and it also serves as a reference base for other researchers.

1.7 The Delimitation of the Study

This study took place in the Asokore Manpong District, to investigate the extent to which information and communication technology tools promote or distract teaching and learning process. In all ten schools were chosen to participate in the survey. A random sample of twenty students and ten instructors from each school were chosen to complete the questionnaires.

1.8 Limitations of the Study

According to Parno et al (2011), any study's limitations refer to potential flaws that are usually outside the researcher's control and are directly linked to the research design, statistical model constraints, financing constraints, or other variables. In this context, a limitation is a 'imposed' restriction over which the researcher has little control.

In this study, the researcher encountered constraints pertaining to data collections, first all, financially the researchers as to finance all the transportation in moving from one school to another. Another challenge researcher faced was due to the method of data collection techniques employed, google form was used to collect data in most of the participant are not familiar with this technique therefore researcher has to educate the participants on how to use the google form.

Students are not allowed to used their personal phones during school hours therefore researcher has to provides phones for the students so they can participate in the survey. One other major challenge faced was internet accessibility, since the google form was used without internet data one will not be able to participate in the survey, the researcher has internet data for some of the participant in order to administer their questionnaires.

1.9 Organization of the Study

The study is categorized into five (5) chapters, the chapters are made of chapter one this comprises of background to the study, problem statement, purpose of the study, objectives of the study, questions for research, the significance of the study, scope of work and hypothesis of the research, methodology.

Chapter two discuss the review of literature related to the study, the topics were discussed based on the outside world view of ICT in education as well as that of the Ghanaians views of the use of ICT in Education, this chapter include the following key topics: introduction, information and communication technology as a disruptive to the teaching and learning process, using ICT tools to improve teaching and learning processes, educational software introduction to improving teaching and learning processes, teachers' knowledge and ability to use ICT tools in the classroom, effects of ICT on students" performance and challenges affecting the use of ICT in teaching and

learning, chapter three comprises, introduction, participants, research design, target population, sample size and sampling techniques, data collection technique, research instruments, the validity of instruments, reliability of instruments, data analysis technique. Chapter four presents the data and analysis of the findings of the study. Chapter five gives a summary of the findings, conclusion and recommendations.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This study is aimed at assessing how ICT tools can improve teaching and learning processes, as well as how ICT tools can be a distraction in the teaching and learning process and also provide measures to reduce the distraction that ICT cause during the teaching and learning process at Asokore Manpong District. This chapter of the project critically reviews extend to which information and communication technology tools distract students or improve teaching and learning as well as measures to reduce the distraction ICT tools causes during the teaching and learning process. The literature review discusses theoretical framework of the study and empirical review of the study.

2.1 Theoretical Framework of the Study

According to Singhavi et al (2019), despite the growing potential of information and communication technologies (ICT) for teaching and learning, many teachers still use them less frequently than they should. Numerous studies have revealed that, in most schools, the use of computers in the classroom is still largely supplemental (Teixeira et al., 2019). One reason for this could be the fact that teachers are regarded as the ‘keystone species for the implementation of ICT in teaching and learning (Kritika Ojha, 2019). Their attitudes and beliefs towards the usefulness of using ICT are also considered crucial for their effective use in educational settings. (Tondeur et al., 2019).

ICT play a pedagogic role that in principle complement and enhance the traditional practices of the education sector (Ogbonnaya Igwe, 2012). The availability and use of ICT within educational pedagogy has changed the nature of relationships in the classroom

and the means of approaching teaching and learning (Garba et al., 2015). According to Versteijlen et al. (2017), ICT has now become the vehicle through which educational administrator and practitioners use to build an environment which facilitates interactive communication and learning.

It is therefore crucial that its use is carefully planned in order to complement pre-existing educational activity in order for practitioners to be able to have control over learning outcomes and to gain maximum benefit from it (Sergis et al., 2018).

This has generated argument in the academic literature on how ICT should be used in Education. The constructivist argued that learning at distance enhances learner-centered, self-paced, and problem solving-based as compared to face to face teaching (Murphy, 2019). On the other hand, instructivists claim that certain learning activities cannot be coordinated by virtual means only (Mattar, 2018a). “The emulation and spontaneity generated by physical presence and social groupings often remain significant”(Butcher and Svensson, 2016). Understanding the differences between Instructivism and Constructivism and where they fit within pedagogical approaches will help with comprehensive planning.

2.1.1 Using an Instructivist Approach in Education

The foundation of instructivism is behaviourism, which views students as empty canisters or sponges that must be filled with information as directed by decision-makers and teachers. (Soysal and Radmard, 2017). This kind of training is frequently referred to as direct instruction. Through purposeful instruction from experts who control the subject matter and sequencing of learning, this teacher-led approach helps pupils understand and be able to engage with their surroundings. (Ahmed, 2016). It has been described as a technique for methodically preparing instructional materials by breaking information

down into smaller, more manageable pieces, grading those pieces, and analyzing them. This establishes a hierarchy of notions, moving from the most basic ones to the more sophisticated ones. (Bagnall et al., 2015). It is a method that puts the teacher or the lesson content rather than the student at the center of teaching and learning. As a result, the learner passively receives information rather than actively participating in it. (Stewart, 2014). Traditionally, teachers are used to give instruction, with no diversification or adjustments made for individual learning preferences or any provision for personal development of information or reflection. (Olsen et al., 2020).

In many parts of the world, this approach is still the main way to offer pedagogy in education (Nabi et al., 2017). This method of knowledge delivery is based on the idea that professionals have a thorough understanding of what their pupils should learn based on their knowledge of the abilities and behaviors that society values (Cunliffe, 2004). By allowing people to develop their brains and produce their own information, this strategy preserves social standards rather than fostering a community of free thinkers.

Instructivists, following Behaviourist principles, can make good use of ICT in that they are able to employ modern technology for the transference of knowledge and content from themselves to students in their class. This means of imparting knowledge is compatible with their philosophy and that of face to face learning (Pyrko et al., 2017), which Lee and Lee (2014) believes is the root of design practices within pedagogy technology. Furthermore, it is belief that educational technology is used within the classroom “as the object of instruction to support fundamentalist values rather than a tool to mediate knowledge construction” (Parti, 2017). This view is partly endorsed by the work of Ghavifekr and Rosdy (2015) who concluded that there were three factors associated with the use of ICT - as an information tool, as a learning tool and as a tool about which basic skills can be learnt. The latter in particular is a means through which

knowledge is created in that pupils must develop adequate ICT skills to be able to use them effectively across all subject areas although students are able to gain knowledge via direct instruction or the use of technology as an investigative tool (Ferri et al., 2020).

2.1.2 Pedagogical Constructivism Framework

In contrast to this paradigm, Constructivism can be regarded as a meaning-making activity of the individual mind (Vogel, 2018). This entails people being more aware of and knowledgeable about their surroundings as a result of experiencing it and considering or reflecting on those experiences. (Maslach & Leiter, 2016).

This is considered to be an active learning process that incorporates the acquisition of knowledge through experience. It is a method that focuses on problem-solving and learning how ideas and knowledge may be applied through the completion of real-world tasks and the utilization of experiences from "real life," in which the information is provided as a whole rather than in parts. (Malik and Coldwell-Neilson, 2017).

People who adhere to this concept think that knowledge is developed through social interaction, where significant answers to issues can be discussed in a practical setting, as well as by individuals. Instead of one where knowledge is simply handed to individuals, this calls for the construction of an environment that encourages interaction between individuals and groups in order to generate knowledge. (Bietti, 2020).

This will help pupils "learn how to learn" and provide them the ability to solve certain issues that arise in different settings.

ICT can be used in this setting as a research tool to acquire data, a communication tool for interacting with others, and a teaching and learning medium. (Gülbahar, 2014). It is a platform for encouraging students to connect with one another in order to expand their

knowledge and hone their analytical and critical thinking abilities (Kong, 2014). ICT is used by professionals who adhere to constructivist principles to enhance teaching and learning while properly utilizing the large amount of knowledge that is available online. (Cronin, 2017).

This can aid in the creation of knowledge for individuals and groups in that it can be saved and manipulated in a manner which meets their needs (Mattar, 2018b). Increasing their ability to be selective with the information they use when they interpret and analyze the facts they have access to while doing so (Solomon and School, 2012). The ability to handle data to fulfill their needs, connect disparate pieces of information, and broaden their knowledge base are all skills that learners develop through the use of modern technology to access information and grasp concepts and the world around them. (Ahmed Alismail Patrick McGuire, 2015)

According to Levy (2017), With the support of current technology, students can collaborate with one another to learn more effectively as independent learners, which also affects their levels of concentration and achievement. Additionally, modern technology aids in the development of student knowledge by fostering higher standards of work, greater motivation, and improved resource management. (Shopova, 2014).

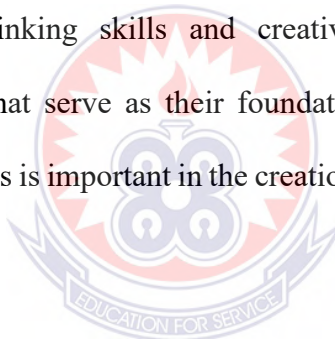
However, this is only possible if activities are created to bring out the best in both individuals and groups of students through the focused use of ICT tools for particular goals while building transferable skills across a variety of different platforms. (Yates, 2015).

It is evident that the use of ICT tools can improve the quality of education through providing students and instructors with the motivation to learn and by facilitating the acquisition of basic skills. Learners have access to modern technology 24/7, both in their

home and at schools and colleges. They have the opportunity to access authentic content which will engage them both individually and collectively in the learning process.

According to Osakwe et al (2017), to guarantee that the goals of using ICT tools in the classroom are realized, it is crucial to consider the circumstances and setting of education delivery, ICT tools can also cause learners to become distracted. To develop people who can actively produce answers to problems and make a significant contribution to the economic life of society after they gone through educational process, activities that are designed utilizing ICT need to confront difficulties within an authentic and diverse framework. (Dwivedi et al., 2021).

Both the Instructivist and Constructivist paradigms enable the transmission, ICTs can facilitate higher order thinking skills and creativity by facilitating fundamental knowledge and concepts that serve as their foundation. (Kumar Gupta, 2018) . It is believed that the role of ICTs is important in the creation and dissemination of knowledge under both paradigms.



2.2 Empirical Review

Although many preservice and in-service teacher programs have sought to improve the preparation of teachers to use technology as an effective instructional tool, many teacher educators and school administrators have realized that technology training alone does not create an effective technology-using teacher. Numerous studies have sought to better understand why some teachers use technology and others do not Vannatta and Nancy, (2004). Research indicates the frequency of classroom distractions that college students experience due to the use of digital devices is increasing. This survey indicates such digital distractions are often habitual and frequently happen despite an admission

by a large majority (89%) of respondents that this behaviour hampers their ability to pay attention in the classroom (McCoy, 2016).

Despite good intentions and alignment to the curriculum, there are instances where technology does not become an enabler to the learning process. Educators must understand the needs of students and the environment that the technology will be used. Engagement through technology is not just adding technology to traditional content (Mailizar & Fan, 2020). One disadvantage of wireless networks in the classroom and students' increasing access to and use of laptops is the distraction that the laptop can create. Hembrooke and Gay (2003) found that students who were allowed to use their laptops during a lecture did significantly worse on a subsequent quiz than the students who were not.

According to Goundar (2014), although many students own a laptop, during the semester, some academic staff members received complaints from students (non-laptop users during lectures) that the use of laptops by other students during lectures was distracting them from paying attention to what was being taught. Other students complained that they were being interrupted by those technology users who were not paying attention and who did not know what was going on in class, what to do next, and how to do it. If the students cared and responded by trying to assist those who were behind, then, they became retarded in their work. Other anecdotal evidence received from students for technology disruptions in the classroom included mobile phone ringing, portable media players playing loud music, network computer games being played in class amongst half a dozen students and being followed and cheered by others.

According to Caldwell (2018), the literature contains evidence that points to student use of mobile technology in class as a distraction. In a study on the effect that texting, and posting to a social network site while in class has on student note-taking and class test scores (Rody, 2013), found that students who engaged in texting and posting recorded fewer details in their notes and scored lower on free-recall tests. Furthermore, responses to an American online study which was distributed to 162 institutions and that received over 50,000 replies revealed that 37% of students admitted to using their smartphones for non-class related activities. The same study noted that when asked for whom these devices were distracting, 41% of students answered that in-class use of mobile devices was distracting, “for me,” “for other students” (49%), and, “for my instructors” (54%).

The use of ICT in the classroom teaching-learning is very important for it provides opportunities for teachers and students to operate, store, manipulate, and retrieve information, encourage independent and active learning, and self-responsibility for learning such as distance learning, motivate teachers and students to continue using learning outside school hours, plan and prepare lessons and design materials such as course content delivery and facilitate sharing of resources, expertise and advice. This versatile instrument has the capability not only of engaging students in instructional activities to increase their learning but of helping them to solve complex problems to enhance their cognitive skills (Guma et al., 2013).

Evidence suggests that the majority of teachers who reported negative or neutral attitudes towards the integration of ICT into teaching and learning processes lacked knowledge and skills that would allow them to make “informed decisions” (Guma et al., 2013).

The rapid growth in ICT has brought remarkable changes in the twenty-first century, as well as affected its adoption and integration by teachers in the teaching-learning process. The effective integration of technology into classroom practices poses a challenge to teachers and administrators. The findings of this study indicate that teachers and administrators have a strong desire for the integration of ICT into education but they encountered many barriers to it. These findings, therefore, have implications for training the teachers to become regular users of ICT focusing on acquiring basic ICT skills (Guma et al., 2013).

There is evidence from research that ICT can help pupils to learn and teachers to teach more effectively. However, there is not a simple message in such evidence that ICT will make a difference simply by being used. Findings suggest that although ICT can improve learning several issues need to be considered if such technology is going to make a difference. Some caution is therefore called for at this broad level of where and how ICT might have an impact. There are two main issues. First is the modest effect of ICT compared with other researched interventions, second is the almost negligible effect of the provision and use of ICT at a general level (Higgins, 2014).

According to Richardson (2009), the current study measured perceptions to understand what motivates or inhibits the end user's choice to adopt a given ICT innovation. It was found that three out of ten teacher trainers did not adopt the use of these ICT skills. Non-adoption in the current project was attributed to not being able to overcome challenges such as broken computers, language issues, limited internet access, the complexity of using the skills, and a lack of ongoing support. Teacher trainers in the current study were more motivated to adopt the ICT skills if they thought the use of these skills was mandated, increased their reputation, was compatible with the demands of their current job, was compatible with how they liked to get things done, was easy,

if they could see tangible results, if they saw others using the skills, and if they were given opportunities to practice using the skills.

Effective implementation of technology into education systems involves substantial funding, which is very hard to manage in developing countries like Bangladesh, where many people are living below the international poverty line. ICT-supported hardware, software, internet, audiovisual aids, teaching aids and other accessories demand huge funds (Sultana and Shahabul, 2018).

The researcher seeks to find solutions to the main objective as well as the research questions, the empirical literature review was based on the following three main objectives of the research study.

1. To what extent do information and communication technology tools distract the teaching and learning process?
2. To what degree does information and communication technology tools promote the teaching and learning process?
3. What measures can be put in place to improve the teaching and learning process using information and communication technology tools.

2.2.1 To What Extent Do Information and Communication Technology Tools Distract the Teaching and Learning Process?

According to Galluch et al (2009), because Information and Communication Technologies (ICT) provide many advantages, such as increasing effectiveness and efficiency, they are becoming extremely common in the classroom. However, alongside these advantages, ICTs have also become a big distraction for many students, thus causing students to use ICTs to slack. Through surveying students and interviewing instructors, we examined two different points of view on whether the presence of ICT

causes students to lose their attention in the class. We found that the presence of ICTs does have a negative effect on students' attention, and this loss of attention occurs most often during PowerPoint lectures.

According to Fried (2008), in several studies, pupils using computers during a class or lecture can be detrimental. While some research suggests that ICT tools can be useful learning tools, anecdotal data suggests that an increasing number of professors are removing ICT tools from their classrooms due to concerns that they would distract students and impact learning.

According to Guma et al (2013), Smartphones are part of digital technology to connect digital learning. But Smartphones have a bad reputation in the classroom. Students may use it in bad areas. The same technologies that allow a person to access knowledge through the phone also facilitate the entry of disrupters that compete directly with the education system. So many schools ban smartphones. However, this does students a disservice in many ways, including missing the opportunity to teach proper use.

According to Uğur and Koç (2015), when cell phones first began to appear in the classroom, an annoying ringing phone would announce its presence and students would look around wondering who it belonged to. This distractor made it difficult for the instructor to keep the attention of the class. Later the rings changed to notes of a song, then to vibrations, which could bounce a phone across a metal desk, and finally to text messages. Every call or message is a distraction to someone.

Another thing that distracts students is phubbing according to Uğur and Koç (2015), phubbing means snubbing someone by looking at the phone instead of paying attention, we consider that being busy with mobile phones during courses is an act of phubbing.

According to Goundar (2011), a lot of academic staff members noticed that the usage of personal laptops in class (during lectures and tutorials when computers were not required) was on the rise, disrupting the teaching and learning process. Apart from students utilizing personal laptops, others were sending and receiving text messages, emails, accessing the Internet, and "checking" on their mobile phones and smartphones. For individuals concerned about the unfettered adoption of new cognitively- penetrating technology, "checking" takes on a new meaning; checking is a new phenomenon for those who can't seem to go a day without access to mobile communication devices frequently. Checking includes checking for text messages, Facebook updates, emails, Twitter, online sites, and determining whether or not my friends are checking me. This occurs regularly, usually four or more times in a single hour. According to a recent poll conducted in the United States, young people now send or receive as many as 107 messages every day, compared to the previous year adults in their later years (around 40). These are shocking facts about current behaviour, and its infiltration into the classroom must be closely watched (Goundar, 2011).

According to Rambe (2012), social media perceivably distracts the less academically motivated students from learning. Waters (2012) bemoans educators' erroneous assumption that instant messaging encourages off-task behaviour in class, the same way the exchange of off-topic messages and informally passing of "notes" can be disruptive. Given the ubiquity of social media-enabled phones at South African universities coupled with students' "texting culture," the aforementioned practices conceivably generate chaos and lack of concentration. The volume of tweets exchanged, students' limited attention spans, loss of context as information flows across different interactants and platforms.

According to Mwalongo (2012), many leaders of institutions consider that ICT tools are a source of distraction, and they are fiercely opposed to their use. This mindset has made proper integration of ICT tools in our education challenging, particularly in second cycle institutions where the ICT session is one hour per week and form three students do not participate in ICT lessons. In the entire district of Asokore Manpong, not a single second-cycle institution offers optional ICT as at the year 2021.

According to Khan (2014), modern technology increasingly creates new challenges in various professional development and practice. However, in teaching, the mere adoption of new or innovative technology is not enough to meet the students' learning needs and opportunities. Technology alone could not sufficiently bring about the desired changes in students' competencies and behaviour.

It is the teachers' competencies to integrate ICT in their instructional tasks that can facilitate these desired changes to the maximum level. Therefore, there is an increasing demand for the inclusion of pedagogy and substantial content knowledge- based use of ICT in teacher's professional development. In this paper, the author presents a model for integrating ICT in the professional development of teachers in Bangladesh based on the Technology Pedagogy Content Knowledge (TPCK) framework, to address the issue of the effective use of ICT in teaching based on two perspectives.

According to Hutchison and Reinking (2011), teachers' perceptions of integrating ICTs into instruction represent another potential obstacle to integration. That is, if teachers have shallow definitions or incomplete perceptions of integrating ICTs into instruction or perhaps even oppositional stances—they are not likely to achieve a more authentic curricular integration of ICTs. Ghana's educational system is more theoretical, most teachers in classrooms find it difficult to use ICT tools, making it tough to educate pupils

on how to use them. Teachers should be trained in the use of ICT tools to better the teaching and learning process. Because the world has become a global village, our educational system should shift to using ICT tools in the classroom rather than traditional pedagogy.

According to Mumtaz (2000), as in integration, teachers engaged in technical specialization embraced computers and viewed the technology as a challenge. These teachers promoted computers in their schools and their activities relating to computing typically demonstrated strong teaching methods such as consistent use, preparation, and delivery of planned lessons involving the computer. During lessons, they generally integrated the computers rather than using them to supplement the traditional curriculum. They also focused their efforts on teaching students about the technical aspects of the computer.

According to Steiner and Mendelovitch (2017), Older teachers with more seniority are generally less positive about the use of computers and the use of information technologies in classrooms in particular. Teachers' willingness to use ICT technologies is dependent upon their knowledge of and fluency in computer skills. This is a major challenge in Ghana's educational system senior teachers find it difficult to use ICT tools effectively in the classroom, therefore, find it difficult to accept full integration of ICT into pedagogical instructions.

2.2.2 To what degree does information and communication technology tools promote the teaching and learning process?

According to Nnaekwe and Patience (2019), globalization and technological changes have created a new global economy powered by technology, fueled by information and driven by knowledge. The emergence of this new global economy has serious

implications for the nature and purpose of educational institutions. As the access to information continues to grow rapidly, schools cannot be contented with the limited knowledge to be transmitted in a fixed period. They have to become compatible with the ever-expanding knowledge and also be equipped with the technology to deal with this knowledge. Information and communication technologies (ICTs) which include radio and television, as well as newer digital technologies such as computers and the Internet have been proven as potentially powerful tools for educational change.

Parallel to the rapid development of information and communication technology, the demand for its use in schools and classroom is increasing (Tugun et al. 2016)

According to Ferragut Martorell (2017), nowadays, the world in which we live cannot be imagined without new technologies. Undoubtedly, ICT tools and devices have become one of the foundations of our society and part of our everyday lives. Therefore, and considering the expansion of all these tools, the field of education has also been shaped and transformed. Indeed, when social media and ICT devices are introduced in the educational field, how students learn and educators teach changes inevitably.

According to Ramperstad (2011), the qualitative studies revealed that teachers, students and, significantly, parents believe that ICT use has a positive impact on students' learning and that students' subject-related performance improves with ICT use. The findings also indicate that teachers believe that the educational achievements of students improve through ICT use and that both strong and weak students benefit from ICT use. Teachers observed that when ICT is used in the classroom pupils work more in cohesion with their learning styles resulting in a more favourable impact on both academically strong and weak students. In addition, students assume greater responsibility for their learning working more independently and effectively when using ICT.

The attitude of the teacher toward using technologies in the classrooms is a major factor in how successful technology integration will be (Tabata and Johnsrud, 2008). With the development of learning technologies in the late 20th century, the education system has changed rapidly. This is due to the capability of technology to provide proactive, easy access and comprehensive teaching and learning environment. Nowadays, the Ministry of education all over the world has provided a lot of facilities and training to enhance the use of advanced technologies in the countries' teaching and learning process (Ghavifekr and Rosdy, 2015).

According to Mikre (2011), if appropriately integrated into our educational system, ICT tools can be used to improve the teaching and learning process. Several studies and papers in recent years have highlighted the opportunities and potential benefits of information and communication technologies (ICT) for increasing educational quality. ICT is seen as a "key tool for the construction of knowledge societies" and particularly at the school education level, as a method for rethinking and redesigning educational structures and procedures, resulting in high-quality education for all.

ICT tools are now able to provide worldwide knowledge-based resources that can aid in the teaching and learning process. ICT enables self-paced learning through various tools such as assignments, computers etc as a result of this the teaching-learning enterprise has become more productive and meaningful. ICT helps facilitate the transaction between producers and users by keeping the students updated and enhancing teachers' capacity and ability fostering live contact between the teacher and the student through e-mail, chalk session, eLearning, web-based learning including internet, intranet, extranet, CD-ROM, TV audio-video tape. Edusat technology has become a very powerful media for interactive participation of experts and learners and it reaches the unreachable. Emerging learning Technology (ELT) of blogging, Integrated Learning

Modules, a podcast, Wikis, Enhancement of Browsers, e-learning, M-learning, U-learning have started making rapid strides in teaching-learning processes (Sharma et al., 2011).

According to Fried (2008), there are several internet applications or software that can assist students in achieving more on their own rather than relying entirely on teachers and limited textbook resources for information in this age of technological growth. This software promotes flip classroom studies, which is a pedagogical strategy that promotes individual learning rather than traditional learning in which a group of students sit in the same classroom to study.

Authorization systems, desktop publishing, simulation software, special needs software, math problem-solving software, utility software, and other educational software are examples. According to Sangra and Gonzalez-Sanmamed, (2010), Several studies and papers in recent years have emphasized the prospects and potential benefits of information and communication technology (ICT) for increasing educational quality. ICT is seen as a "key tool for constructing knowledge societies" and, more specifically, as a mechanism at the school education level that can help rethink and restructure educational institutions and processes, resulting in high-quality education for everybody.

2.2.3 What Measures can be put in Place to Improve the Teaching and Learning Process using ICT tools?

The teaching-learning process is a method of systematically organizing the instructor, the learner, the curriculum, and other elements to achieve pre-determined goals and objectives. Teachers' ability to select good software during classroom lessons depends on the technical expertise of the teacher, according to lam et al. (2016), teacher

familiarity, confidence, and expertise in selecting software and integrating technology into the curriculum are all dependent on teacher training and time for self-directed learning and discovery. Many teachers have not gotten adequate training to identify acceptable technologies and lack support to apply them due to the relative newness of computer technology.

2.2.4 Teachers' Pedagogical Considerations of ICT Tools Use

In more recent studies of ICT integration, researchers have emphasized instructors' abilities to incorporate technology with instruction. The purpose of ICT integration is to correctly design and educate utilizing technology, considering the curriculum, students, and technology, and to help students learn more effectively (Hsu, 2010). The instructors' use of technology in classes, the instructional component is linked with the technological component.

According to Sutherland et al (2010), It is critical to include teachers' understanding of technology, instructional design, implementation, and evaluation, as well as other crucial components of teaching and learning with technology, while designing an instrument that assesses instructors' expertise in ICT integration.

2.2.5 ICT Tools Use as Part of Teaching Methods

According to Maricic et al. (2015), this method incorporates ICT into teacher education to make some aspects of it easier. Teachers are given instances of ICT-pedagogy integration in their training process. and engage in activities that promote lifelong learning and equitable, ethical, and legal use of computer technology resources.

2.2.6 Application of Technology in Instruction

Computers and related technology should be used by teachers to support students in their grade levels and subject areas. They must design and deliver instructional packages that incorporate a wide range of software, applications, and learning aids. Effective grouping and assessment procedures for varied populations must be reflected in the lessons provided (Aktaruzzaman et al., 2011).

2.2.7 Personal and Professional Use of Technology

To improve teaching and learning, teachers need to understand the concepts of technology in education so that they can apply them in their instructional design according to Aktaruzzaman et al. (2011), Teachers should use tools to help them improve their professional development and productivity. They should communicate, collaborate, conduct research, and solve problems using technology. They will also plan

2.2.8 Effective Training Program

With ICT Tools enabling the development of greater levels of cognitive skills in evaluating arguments, analyzing issues, and applying what is learned, the teacher has a vital role to play in the teaching/learning paradigm shift. Although instructors play a significant role in the learning environment, they are sometimes ignored when modifications to teaching and learning procedures are made. (Bangkok, 2004). Teachers' needs in changing circumstances must be reviewed regularly, and activities to meet those requirements must be devised. As a result, instructors must receive professional development to be able to successfully employ technology to increase student learning. Staff development should be developed jointly, with input from teachers and school needs. It must prepare instructors to effectively employ technology in their classrooms (Afshari et al., 2009).

According to Spillane (1999), Teachers who are committed to their professional development are more likely to engage in activities that lead to a deeper grasp of an innovation's goals. Also, according to Hargreaves and Fullan, (1992), teachers who are actively involved in their professional development are more suited to execute changes in their classrooms. As a result, having a system in place to reward innovative and effective ICT tools integration in schools will motivate teachers to incorporate technology into their lessons. Teachers may be motivated to improve and refresh their ICT tools integration skills and knowledge through formal certification of in- service professional development that leads to certifications or degrees.



CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The goal of this study is to determine if ICT tools detract from or enhance the teaching and learning process in the Asokore Manpong District. The study's methodology is the subject of the third chapter, which includes thorough information about the participants, data collection procedures, data collection instruments, and sampling techniques, as well as research design, instrument description, and distribution.

3.1 Participants

The survey was done at 10 schools in the Asokore Manpong District, with five teachers and twenty pupils from each school being chosen to complete the questionnaires. The participants for the experiment were chosen because they were directly involved in the usage of ICT technologies in school.

According to Creswell and Creswell (2013), research designs are plans and procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. In this study, a descriptive survey design was adopted. This is because it is effective at illuminating reality by gathering comprehensive factual information about current events at a specific point in time, the descriptive survey research approach is used (Vyhmeister, 2001). As part of the research design, respondents will be asked questions about their perspectives, abilities, knowledge, and attitudes toward ICT tools. The respondents will also answer questions based on the research questions. Questionnaires were used to collect data from respondents.

3.3 Target Population

Students and teachers from selected public secondary schools in Asokore Manpong District made up the study's target population. The selection of headmasters and instructors is based on their importance in planning, executing, and assessing ICT tools integration in their individual schools. Teachers, in particular, play a critical role in the operational planning of ICT tools in teaching and learning. They are better able to communicate relevant information on the use of ICT in teaching and learning. Students are especially important participants in this study since they are the only ones who profit from effective ICT tools use. Ten headmasters, fifty teachers, and two hundred students were expected to participate in the study.

3.4 Sample Size

Based on meticulous observation of variables with a relatively small proportion of the population, sampling allows accurate inferences or generalizations to be drawn. Because the research is founded on the idea that ICT tools either distract or help the teaching and learning process, only ten schools were included in this study. Two of the 10 schools did not have ICT laboratories.

3.5 Sampling Techniques

The sample size was determined using the Taro Yamane formula with a 95% error margin, 1200 pupils and teachers were chosen as the population size. Below is the general formula for the Taro Yamme

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = sample size required

N = number of people in the population

e = allowable error (%)

Solving for n sample size

$$n = \frac{1200}{1 + 1200(0.05)^2}$$

$$n = \frac{1200}{1 + 1200 \times 0.0025}$$

$$n = \frac{1200}{1 + 3}$$

$$n = \frac{1200}{4}$$

$$n = 300$$



Therefore n (sample size) is 300.

300 respondents were chosen from 10 selected schools, 10 teachers were chosen randomly from each of the selected schools and 20 students were selected from each of the selected schools to participate in the studies.

3.6 Data Collection Technique

The researcher obtained an introductory letter from the AAMUSTED Graduate Studies Department in order to obtain the formal concern of the Asokore Manpong District Education Director, who intends to give the researcher an introductory letter to various selected schools in order to conduct the research. The data collection technique used in this study was questionnaires, which were designed using Google forms. The idea for using Google forms for the questionnaire is in line with the research study, and the rationale for using this technique is that it allows the researcher to carefully structure and formulate the data collection plan. Respondents can complete the questionnaires at their leisure and consider their answers. It can reach any part of the world thanks to the tools employed to create the questionnaires

3.7 Research Instrument

Data were collected using two sets of questionnaires to see if ICT technologies enhance or distract the teaching and learning process. This questionnaire consists of open-ended questions, check-list questions and five Likert scales and is divided into three (3) parts as follows:

Part 1: This is the questionnaire about the demographic information of the respondents.

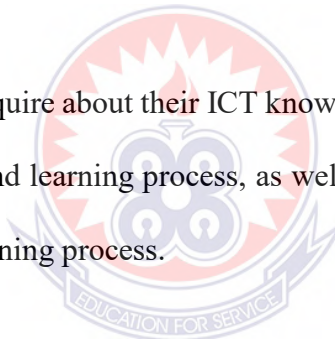
Queries on this part include: gender, age, education level and teaching experience

Part 2: This is a questionnaire about basic knowledge in computing, queries on this set include access, to computers, the internet, and whether they intended to use the computer for the teaching and learning process.

Part 3: Forms the questionnaire on Likert scale questions on:

- i. To what extent does information and communication technology tools improve the teaching and learning process?
- ii. To which extent does information and communication technology tools distract the teaching and learning process?
- iii. What measures can be put in place to improve the teaching and learning process using information and communication technology tools. The two sets of questions comprise teachers' questionnaires and students' questionnaires. These questionnaires try to answer questions about students, ICT knowledge, ICT skills, and whether or not ICT tools are a distraction or assist the teaching and learning process.

Teachers' questionnaires inquire about their ICT knowledge, abilities, and integration of ICT tools in the teaching and learning process, as well as whether ICT tools distract or enrich the teaching and learning process.



3.7 Validity of Instruments

The correctness and significance of inferences generated from study findings are characterized as validity. To put it another way, legitimacy (Morphology, n.d.) relates to whether or not a measure is measuring what it claims to be measuring (Coolican 1994). The researcher conducted a pilot study in two secondary schools to determine content validity through the responses and findings of respondents to ensure validity. Items that might not accurately measure the variables were changed or removed entirely. The main study excludes the schools that were used in the pilot study.

3. 8 Reliability of Instruments

A questionnaire is a series of questions asked to individuals to obtain statistically useful information about a given topic (Golafshani, 2003). Mugenda and Mugenda (2003), define dependability as the degree to which an instrument produces consistent outcomes or data after multiple trials. Furthermore, the clarity of the study instrument used to gather data affects the trustworthiness of the research findings. By conducting a pretest study at two secondary schools, the researcher was able to determine the instrument's dependability. The results of the pilot study aided in the selection of instruments and their dependability. The researcher examined the responses from the pilot study for consistency, the usefulness of information obtained, and content omission. Before the actual investigation, the results of the pilot study helped to refine the instrument items.

Ambiguous questions might cause participants to interpret the same questionnaire items differently, resulting in errors owing to a lack of consistency in responses. The questionnaire items were created in such a way that as many of the same kind and quality as possible were employed.

The extent to which results are constant over time and provide an accurate picture of the overall population under investigation is referred to as dependability, and if the results of a study can be replicated using the comparable technique, the research instrument is considered dependable (Golafshani, 2003).

According to Sarmah and Bora Hazarika (2012), This sort of reliability responds to the inquiry, "How well does each item measure the content or construct in question?" It's a measure of how reliable a test or metric is when it's just given once. It's worth noting that the majority of educational and psychological assessments are only given once. Internal consistency measures look at how elements in a test interact with one

another. It refers to how closely test items are linked. Internal consistency in a test has the potential to improve test reliability.

If all of the test items measure the same thing, the test has high internal consistency. In this example, the estimating technique includes the 'Spearman-Brown Formula,' Kuder Richardson Formula (K. R. Formula), and others.

3.8.1 Cronbach Alpha

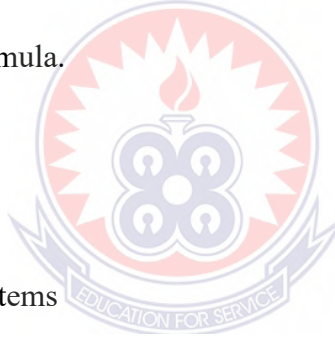
This research employed Cronbach Alpha as a tool for reliability test on the piloted questionnaire. Cronbach devised a generalized method for calculating the reliability coefficient of an essay-based test or a personality questionnaire in which each respondent may earn a different numerical score on each item. Cronbach Alpha is the name given to this formula.

$$\alpha = \frac{Nc}{v + (N-1)c}$$

N is the number of items

c is the average inter-item covariance among the item

v is the average variance.



The piloted questionnaire for the two selected schools was used to determine the reliability of the questionnaire using SPSS. The alpha coefficient for selected items was 0.764, which suggest that the items have relatively high internal consistency. From the formula reliability coefficient of 0.7 or higher is considered acceptable.

3.9 Data Analysis Technique

The data was analyzed using both qualitative and quantitative research methodologies. The responses to each question were coded by giving response codes to each item. Based

on the research questions and objectives, the results were divided into themes. Descriptive statistics like frequencies, percentages, and averages were used to assess categories like demographic data. A computer was used to examine some of the coded elements using statistical software for social science programs (SPSS). Information such as gender, ages, academic qualification and professional experience were analyzed.



CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This chapter deals with the analysis of the study findings based on the questionnaires on both the teachers and the students administered, the first part is questionnaires for teachers, which is grouped into three main categories demography, teachers' expert in the use of ICT tools and how ICT tools distract or improve the teaching and learning process.

4.1 Return Rate

Respondents from various Asokore Manpong District schools were anticipated to provide a total of 300 responses. There were 295 replies to this survey. After careful consideration, 290 replies were suitable for inclusion in the analysis. Some of the most important questions to the study were not answered accurately by the respondents, 95 of whom were tutors and the remaining 195 were students.

4.2 Demographic Information of Respondents

Respondents from various Asokore Manpong District schools were anticipated to provide a total of 300 responses. There were 295 replies to this survey. After careful consideration, 290 replies were suitable for inclusion in the analysis. Some of the most important questions to the study were not answered accurately by the respondents, 95 of whom were tutors and the remaining 195 were students.

The age, gender, religious background, educational background, teaching experience of the teachers were analyzed. The age, gender, and degree of education of the students were recorded for this survey. A total of 195 questionnaires were expected from the

students, but only 195 replies were received, with 10 of them deemed unfit for research due to data abnormalities.

4.2.1 Gender of the Teachers

The Table 1 indicates the gender of the teachers who took part in the survey.

Table 1 Gender of the respondents.

Gender	Frequency	Percentage (%)
Male	59	62.1
Female	36	37.9
Total	95	100.0

From: field survey 2021

From Table 1 a total of 95 teachers responded to the questionnaires, 59 of them were male teachers forming 62.1% and 36 female teachers forming 37.9%. The difference is so because most of the female teachers do not have much idea about ICT based on the survey conducted most female tutors lack the basic required skills in the use of ICT tools.

4.2.2 Gender of Students

Gender plays a significant role in the use of ICT tools. The majority of female students have difficulty using ICT tools. Table 2 shows the gender distribution of students who took part in the survey. Table 2 shows that 195 students participated in the survey, with 123 male students accounting for 63.1 % of the total. Female students make up 72 of the totals, accounting for 36.9 % of the total. According to the results of the field survey, female students dislike ICT tools more than male students.

Table 2 Students' gender

Gender	Frequency	Percentage %
Male	123	63.1
Female	72	36.9
Total	195	100.0

From: Field survey 2021

4. 2.3 Age Categories of Teachers

Age play major rule in the use of ICT tools in teaching and learning process the table 3 and table 4 show the age categories of teachers and students within Asokore Mampong District who participated in the survey.

Table 3 Age category of the teachers.

Age	Frequency	Percentage (%)
30 or Less	7	7.4
31-35	46	48.4
36-45	23	24.2
46-55	12	12.6
More than 55	7	7.4
Total	95	100.0

From: Field survey, 202

From the age distribution table, a total of 95 teachers responded to the poll, with 7 of them being under the age of 30, accounting for 7.4% of the total responses. 46 of them were between the ages of 31-35, accounting for 48.4% of the total respondents. This age group suggests that the majority of the responders were in this age bracket, indicating that the majority of the teachers in the district are in this age bracket. 23 of them were in the 36-45 age bracket, which accounted for 24.2% of the total respondents. The next

greatest age group is 46-55 years old, with 12 respondents accounting 12.6% of the total respondents. The last group is over 55 years old and consists of 7 instructors, accounting for 7.4% of the district's teachers who are approaching retirement age.

4.2.4 Age of Students

Table 4 Shows the age of the students who took part in the survey.

Table 4 Students Age

Students Age	Frequency	Percentage %
11-15	85	43.6
16-20	74	37.9
20 or More	36	18.5
Total	195	100.0

From: field survey 2021

Table 4 shows that a total of 195 responses were received, with 85 representing 43.6 % of those in the 11-15 age bracket and 74 representing 37.9% of those in the 16-20 age bracket. The final category, which includes those aged 20 or more, makes up 36 of the totals, accounting for 18.6% of the total. According to the poll, the majority of students in the Asokore Manpong Municipal district are between the ages of 11 - 15.

4.2.5 Level of Students

The level of the students also has important rule on the use of ICT tools in teaching and learning process. Table 5 indicates the level of the students who participated in the survey.

Table 5 Level of students

Level of Students	Frequency	Percentage (%)
Basic	28	14.4
Junior High School	95	48.7
Senior High School	72	36.9
Total	195	100.0

From: Field survey 2021

A total of 195, responses were used for the analysis, 28 of them representing 14.4% were basic level students who took part in survey, 95 of them accounting for 48.7% of the total were Junior High school students and 72 of them representing 36.9% were senior high school students. From the survey it can be deduced that majority of the students who responded to the questionnaires were junior high school students follow by senior high school students.

4.2.6 Religious Background of the Teachers

The Table 6 indicates the religious background of the teachers who partake in the survey.

Table 6 Religious distribution table for the teachers.

Religion	Frequency	Percentage (%)
Christian	52	54.7
Muslim	32	33.7
Traditional	8	8.4
Other	3	3.2
Total	95	100.0

From: field survey 2021

According to Table 6, a total of 95 teachers partakes in the survey out of this 52 of the are Christians which form the highest percentage of 54.7, and 32 of them are Muslims which form 33.75 of the totals. 8 traditionalists corresponding to 8.4% and 3 belong to other religion which constitute 3.2% of the total.

4.2.7 Educational Background of the Teachers

Educational background plays major role in the use of information and communication technology the Table 4 indicates the educational qualification of the respondents for the study.

Table 7 Educational Background of the Teachers

Educational background	Frequency	Percentage (%)
Certificate	5	5.3
Diploma	30	31.6
Bachelor	43	45.3
Postgraduate	11	11.6
Master of philosophy	5	5.3
Or higher	1	1.1
Total	95	100.0

From: field survey 2021

According to Table 7, a total of 95 teachers took part in the survey, and 5 of them possessed a certificate, accounting for 5.3% of the total, implying that the number of certificate holders in the district is low. 30 of the respondents had a diploma, accounting for 31.6% of the total, indicating that the percentage of instructors with a diploma is moderate in the district. 43 of the respondents held a bachelor's degree, accounting for 45.3% of the total, indicating that bachelor's degree-holding teachers are the most numerous in the district. 11 of the respondents held a postgraduate degree, accounting

for 11.6% of the total, indicating that the district has a small number of postgraduate teachers. 5 of the respondents held Master of philosophy, accounting for 5.3 per cent which shows that teachers with a master of philosophy qualification are not many in the district.

4.2.8 Teachers Working Experiences

The table below is the number of years the respondents have worked in teaching field.

Table 8 Working Experience of the Teachers.

Years	Frequency	Percentage (%)
1-10	38	40.0
11-20	31	32.6
21-30	24	25.3
31 or More	2	2.1
Total	95	100.0

From: Field survey 2021

From the Table 8 a total of 95 instructors were questioned, with 38 having 1-10 years of experience, accounting for 40% of the total. According to the poll, the bulk of the instructors in the district had less experience. 31 of the respondents had 11-20 years of teaching experience, accounting for 32.6% of the totals, teachers have more than ten years of experience. 24 of the teachers with 21-30 teaching experience accounting for 25.3% instructors. 2 of the tutors who representing 2.1% of the total, have more than 31 or more years of experience teaching in the district. Form the survey conducted teachers with less teaching experience in teaching are more familiar with the use of information and communication technology as compare to teachers with high teaching field experiences.

4.2.9 Teachers Access to ICT Tools for Teaching and Learning.

Table 9 indicates the types of the computer used by the respondents within Asokore Manpong District.

Table 9 Types of Computers

Types of computers	Frequency	Percentage (%)
Laptop	41	43.2
Desktop	15	15.8
Both laptop and Desktop	13	13.7
None of them	26	27.4
Total	95	100.0

From: field survey

The types of computers used by respondents, as well as those who do not use computers, are listed in table 9 according to Table 9, 41 out of 95 people, or 43.2 %, have access to laptop computers. Table 6 shows that 15 respondents use desktop computers, accounting for 15.8% of the total. 13 of the 95 have both a laptop and a desktop computer, accounting for 13.7 % of the total.

There are 26 out of 95 participants who do not have access to a computer system, accounting for 27.4% of the total. According to the survey, the majority of teachers have access to a mobile laptop computer that can be utilized in the classroom for demonstrations.

4.2.10 Teachers' Expertise in the Use ICT tools for Teaching and Learning

The Table 10 show the number of the teachers who can use ICT tools to teach in classroom as well as their comfortability in using the technology in the classroom.

Table 10 Teachers Expert in Knowledge in the Use of ICT Tools in Classroom.

Expertise of teachers	Frequency	Percentage (%)
I am very uncomfortable using technology for teaching	25	26.3
I am unfairly comfortable using technology for teaching	22	23.2
I am fairly comfortable using technology for teaching	33	34.7
I am very comfortable using technology for teaching	15	15.8
Total	95	100.0

From: field survey 2021

According to the table 10, out of the 95 instructors interviewed, 25 of them representing 26.3% are very comfortable with the use of technology in the classroom, accounting for 22 of them, or 23.2% of the total, are unfairly comfortable using technology in classroom. 33 of them, or 34.7% of the total are fairly comfortable using technology in the classroom. 15 of them, or 15.8% of the total responses, are very comfortable utilizing technology for teaching. According to these figures, the majority of teachers in the district find it challenging to employ technology in the classroom.

4.3 The Extent to which ICT Tools Promote Teaching and Learning

Introduction of information and communication technology tools for teaching and learning, has potential to improve both teachers' and students' academic achievement, beside this potential, ICT tools can also cause distraction to teaching and learning process. A total response of 290 was analyzed out of which 95 of them were teachers and the remain 195 were students. Table 11 and table 12 indicates responses to what extent does ICT tools promote teaching and learning process within the Asokore Manpong district.

Table 11 For Teachers on ICT Tools Promote Teaching and Learning

Statement	N	Min	Max	Mean	Std. Dev
ICT tools can improve teaching and learning process	95	1.0	5.0	4.32	1.138
ICT tools improve students' critical thinking skills	95	1.0	5.0	4.29	0.979
ICT tools can improve students' participation and feedback to teachers	95	1.0	5.0	4.05	1.085
ICT tools improve collaborative among teachers and students	95	1.0	5.0	3.80	1.048
ICT tools improve students' individual learning	95	1.0	5.0	3.72	1.235
ICT tools improve students' knowledge retention	95	1.0	5.0	3.67	1.248

From: field survey, 2021. Mean scale: 1-1.80 = Strongly Disagree, 1.81-2.60= Disagree, 2.61-3.40 =Uncertain,.3.41-4.20 = agree, and 4.21-5 = Strongly Agree.

According to the Table 11, a Likert scales types questionnaire was used by the researcher to obtain response on what extent does ICT tools promote teaching and learning, from the table, Strongly Disagree = 1, Disagree =2, Uncertain = 3, Agree = 4 and strongly agree = 5. N represent the number of participants who answered the Likert scale type questionnaires.

From table 11, most of the respondents agreed that ICT tools can improve teaching and learning process this has a mean of 4.32 with a standard deviation of 1.138. This has the highest mean indicating that most teachers within the district strongly agreed that ICT tools can improve teaching and learning process in the district.

From Table 11, ICT improves students' critical thinking skills has mean of 4.29 is the next highest mean with standard deviation of 0.979, according to the respondents, this indicates most teachers strongly agreed that ICT tools has the capable of enhancing students' critical thinking skills within the Asokore Manpong District.

From Table 11, ICT tools can improve students' participation and feedback to teachers, has a mean of 4.05 with a standard deviation of 1.085, this indicates that most respondents within Asokore Manpong District agreed that ICT tools can promote students' participation and feedback to teachers.

From Table 11, ICT tools improve collaborative among teachers and students with a fourth mean of 3.80 with a standard deviation of 1.048. This indicates that is section of the teachers agreed that ICT tools improves collaboratives among teachers and students.

From table 11, ICT tools improve students' individual learning has the sixth mean of 3.72 with standard deviation of 1.235 this indicates that, section of the teachers within the district do not strongly believe that ICT tools improves students' individual learning.

From table 11, ICT tools improve students' knowledge retention has a mean of 3.67 with a standard deviation of 1.248 this indicates that section of the respondent within Asokore Manpong District do not concord that ICT tools improves students' knowledge retention.

Response from a field survey on the extent to which ICT tools enhance teaching and learning based on selected characteristics that suggest that ICT tools promote teaching and learning are tabulated below.

ICT tools have potential to promote teaching and learning process students within the District responded to some of the selected factor that can promote teaching and learning process with the help of ICT tools.

Table 12 For Students on ICT Tools Promote Teaching and Learning

Statements	N	Min	Max	Mean	Std. Dev
ICT brings about inclusion	195	1.00	5.00	4.45	1.110
ICT promotes subject learning	195	1.00	5.00	4.44	1.371
ICT tools promote engagement and knowledge	195	1.00	5.00	3.87	1.224
ICT tools promotes effective differentiation instruction with knowledge	195	1.00	5.00	3.66	1.181
ICT tools promotes creative thinking	195	1.00	5.00	3.45	1.241
ICT tools motivate teaching and learning	195	1.00	5.00	3.37	1.226
ICT tools encourage collaborative learning	195	1.00	5.00	3.11	1.181
Valid N (listwise)	195				

From: field survey, 2021. Mean scale: 1-1.80 = Strongly Disagree, 1.81-2.60 = Disagree, 2.61-3.40 = Uncertain, 3.41-4.20 = agree, and 4.21-5 = Strongly Agree.

According to the Table 12, a Likert scales types questionnaire was used by the researcher to obtain response on what extent does ICT tools promote teaching and learning, from the table these are the range of the Likert scales, where Strongly Disagree = 1, Disagree =2, Uncertain = 3, Agree = 4 and strongly agree = 5. N represent the number of participants who answered the Likert scale type questionnaires.

A total response of 195 received from correspondents, from Table 12 students agreed that, ICT tools brings about inclusion with a mean of 4.45 with a standard deviation of 1.110, according to the survey most students strongly agreed that, the advantages of ICT

in education include the ability for all pupils in the classroom to study from the same curricular materials. Students with special needs are no longer at a disadvantage because they have access to necessary materials and can use unique ICT tools to meet their own educational demands.

According to Table 12, next factor to consider is ICT tools promotes subject learning, this has mean of 3.44 with standard deviation of 1.371, as evidenced by the students' responses, it is widely accepted these days that the usage of ICT in school enhances important learning areas such as literacy and numeracy. From the survey most students strongly agreed that ICT tools promotes subject learning can improve teaching and learning.

From Table 12 the next factor to consider is, ICT tools promote engagement and knowledge retention, this as mean of 3.87 with a standard deviation of 1.224, the response received from the survey indicates that students agreed that students become more involved in their work when ICT is introduced into lessons. This is due to the fact that technology allows for many ways to make it more engaging and enjoyable to teach the same subjects in different ways.

According to Table 12, next factor is, ICT promotes effective differentiation instruction with technology, this has a mean of 3.66 with a standard deviation of 1.181, from the study results, most students agreed that they all learn at different rates and ways, and that technology allows for this to happen, this suggests that students can learn at their own speed using ICT technologies.

From Table 12 the next factor is ICT tools promotes creative thinking; this has a mean of 3.45 with a standard of 1.200, according to the survey conducted within Asokore Manpong District students' response indicates that most students agreed that, evaluation,

planning, monitoring, and reflecting are just a few of the critical abilities for the twenty-first century. Effective use of ICT tools in education necessitates abilities such as explaining and justifying the use of ICT tool in the creation of problem-solving solutions.

From Table 12, next factor that, enable ICT tools to promote teaching and learning is ICT tools motivates teaching and learning, this has a mean of 3.37 with a standard deviation of 1.226, according to, response from students', students are uncertain how ICT tools motivate teaching and learning can improve teaching and learning using ICT tools, therefore there is the need to make students aware of how, technology fascinates students, encouraging and motivating them to learn in the classroom this will promote teaching and learning within the district.

From Table 12 the last factor is ICT tools encourages collaborative learning; this has a mean of 3.04 with a standard of 1.386, according to the survey conducted within Asokore Manpong District students' response review that, students are uncertain how ICT tools encourages collaborative learning improves teaching and learning.

4.4 The Extent to which ICT Tools Distract Teaching and Learning Process.

Teachers and students within the Asokore Manpong District provided feedback on a survey about the extent to which ICT tools distract teaching and learning process. The data provided in Table 13 and table 14 show extent to which ICT tools distract teaching and learning process in the Asokore Manpong District.

Table 13 For Teachers on ICT Tools Distract Teaching and Learning

Statements	N	Min	Max	Mean	Std. Dev
Lack of ICT specialist teachers to teach students computer skills	95	1.0	5.0	4.83	1.082
Lack of teaching experience with ICT	95	1.0	5.0	4.62	1.378
Not every teacher believes in using ICT tools in classroom	95	1.0	5.0	4.51	1.136
Lack of time require to successfully integrate technology into the curriculum	95	1.0	5.0	3.81	1.305
lack of on-site support for teachers using technology	95	1.0	5.0	3.68	1.331
Lack of ICT related pedagogical skills	95	1.0	5.0	3.56	1.323
Lack of ICT related Skills	95	1.0	5.0	3.43	1.224
Lack of Confidence to try new technology	95	1.0	5.0	3.29	1.315
lack of help supervising students using ICT tools	95	1.0	5.0	3.05	1.318

From: field survey, 2021. Mean scale: 1-1.80 = Strongly Disagree, 1.81-2.60 = Disagree, 2.61-3.40 = Uncertain, 3.41-4.20 = agree, and 4.21-5 = Strongly Agree.

Table 13 provides factors that contributes ICT tools to distract teaching learning. A Likert scale questionnaire was used to obtained responses from the respondents. 95 respondents were interviewed no missing variable meaning they all provided answer to the questions answered. From Table 13 Lack of ICT specialist teachers to teach students computer skills has the highest mean of 4.83, with standard deviation of 1.082 this

indicates that, most of the respondents strongly agreed that, Lack of ICT specialist teachers to teach students computer skills in can contribute to distraction in in classroom.

This is followed by Lack of teaching experience with ICT, which has a mean of 3.62 with standard deviation of 1.378, this indicates that most of the teachers strongly agreed that, lack of teaching experience with ICT can lead to distraction in the classroom.

From table 13, another factor that can contribute to ICT tools distract teaching and learning is not every teacher believes in using ICT tools in classroom, it has a mean of 4.51 with standard 1.136. this mean that most teacher strongly agreed that if a teacher does not have faith in the tools at hand it will be hard for that teacher to add that tools in his instructions to teach.

From table 13 another factor that followed is lack of time require to successfully integrate technology into the curriculum, that has a mean of 3.81 with a standard deviation of 1.305, most respondents within the district agreed that time to properly integrate ICT tools in curriculum is an issue that can cause distraction in classroom.

From Table 13, lack of on-site support for teachers using technology, according to the responses from the teachers within the district another factor that can lead ICT tools to distract teaching and learning is on-site support for teachers using technology to teach. This has a mean of 3.68 with standard deviation of 1.331. This indicates that most teachers agreed lack of on-site support for teachers using technology can distract teaching and learning.

From Table 13, lack of ICT related pedagogical skills, according to the response received from the respondents, lack of ICT related pedagogical skilled can also lead ICT tools to distract teaching and learning, this has mean of 3.56 with standard deviation of 1.323.

this implies that most teachers within that district agreed that lack of ICT related pedagogical skills can distract teaching and learning process.

From Table 13 another factor which has a mean of 3.43 with a standard deviation of 1.224 is Lack of ICT related Skills, according the responses received from the respondents within the district most teachers agreed that some teachers do not have ICT related skills therefore in an attempt to use it in classroom will cause distraction.

From Table 13, Lack of Confidence to try new technology, according to that survey response lack of confidence to try new technology is another factor which has a mean of 3.19 with a standard deviation of 1.315 according to responses from the participant section of the teachers are uncertain if lack of confidence to try new technology can lead ICT tools to distract teaching and learning, a teacher without the confidence in using technology to teach if try it is likely to lead to distraction in the classroom.

From Table 13, lack of help supervising students using ICT tools, according to the survey, lack of help supervising students using ICT tools has mean of 3.05 with a standard deviation 1.316, teachers are uncertain that lack of help supervising students is another contributing factor that can lead ICT tools to distract teaching and learning.

Table 14 For Student Extent to which does ICT tools distract teaching and learning

ICT tools distract teaching and learning	N	Min	Max	Mean	Std. Dev
Technology can affect lesson time and flow	195	1.00	5.00	4.58	1.044
Teachers need more professional development	195	1.00	5.00	4.52	1.181
Not all teachers 'believe' in using technology	195	1.00	5.00	3.50	1.100
lack of adequate ICT support, infrastructure, or time	195	1.00	5.00	3.28	1.241
Tension between students and teachers	195	1.00	5.00	3.27	1.226
It's easy for students to be distracted	195	1.00	5.00	3.22	1.224
Differing device capabilities and instruction	195	1.00	5.00	3.20	1.110
Teaching with ICT tools take more time	195	1.00	5.00	3.13	1.371
Not everyone has technology at home	195	1.00	5.00	3.11	1.181
Valid N (listwise)	195				

From: field survey, 2021. Mean scale: 1-1.80 = Strongly Disagree, 1.81-2.60 = Disagree, 2.61-3.40 = Uncertain, 3.41-4.20 = agree, and 4.21-5 = Strongly Agree.

Table 14 provides factors that contributes ICT tools to distract teaching and learning. A Likert scale questionnaire was used to obtained responses from the respondents, from Table 14 Technology can affect lessons time and flow, this has a mean of 4.58 with standard deviation of 1.044 this indicates that students strongly agreed that technology affect lesson time and flow cause distraction to teaching and learning, according to students, lessons are interrupted on a frequent basis by agreements that shorten the time allotted for each instruction. This is linked to pupils not putting down their screens (during instructions), hiding screens from teachers' view, claiming devices don't work, and charging devices insufficiently.

The next factor considered was Teachers need more professional development, which has 4.52 with a standard deviation of 1.181 according the responses from the students, within the Asokore Manpong District, most students strongly agreed that, there are more

teachers that require access to ICT enhancements for classroom application and to stay current with technology advancements. This must be done on a regular, scaffolded, and long-term basis, despite this, professional learning resources distribution has been described as erratic in scope and quality.

From Table 14 another factor the students from Asokore Manpong who took part in the survey agreed causes distraction to teaching and learning is, not everyone has technology at home this has a mean of 3.50 with a standard deviation of 1.100, according to the responses received from students within the district, most students agreed that, not every student or instructor has access to a computer at home, is a frequent user, or has enough data or internet connection. There is a digital divide in computer literacy among Indigenous kids, as well as pupils from lower socioeconomic and regional/rural backgrounds. Teachers face difficulties if they must assign various tasks to different pupils or if they avoid assigning homework that has a digital component, this distracts teaching and learning process.

From Table 14, another factor that distract teaching and learning using ICT tools is, not all teachers 'believe' in using technology, this has mean of 3.50 with standard deviation of 1.241, according to a student survey most students agreed that, teachers who do not believe in the use of digital technologies will fail to alter classes, align with learning goals, and incorporate technology into curricular content.

From Table 14 next factor that cause ICT tools to distract teaching and learning is, lack of adequate ICT support, infrastructure or time, this has mean of 3.28 with a standard deviation of 1.241, according to the survey, students are uncertain that Teachers face considerable issues in terms of inappropriate access to technical support (in the

classroom, informally), infrastructure (computer laboratories, software), policy (whether to administer digital homework), and time given to incorporate new technology.

From Table 14 another factor that can lead ICT tools to distract teaching and learning is, tension between teachers and students this has a mean of 3.27 with a standard deviation of 1.226, according to the survey section of the students uncertain that, teachers have confiscated "personally owned" devices, while pupils have found a means to sneak their devices into school, according to the survey, this has resulted in absolute rejection of the use of ICT tools.

From Table 14 another factor that cause ICT tools to distract teaching and learning is, it is easy for students to be distracted, section of the students are uncertain that this can cause distraction to teaching and learning, this has mean of 3.22 with standard deviation of 2.224, according to survey conducted within the Asokore Manpong District, responses from students indicates that, Instead of doing classwork, students frequently use their gadgets for social media, gaming, instant messaging, text messaging, and emailing.

Students have been labeled "digital rebels" for using social media and texting, "cyber wanderers" for playing virtual games, and "eLearning pioneers" for using technology (undertaking online studies during class time), this led to distraction in classroom.

According to Table 14, another factor that can lead to distraction of ICT tools in teaching and learning process is, differing device capabilities and instruction, this has a mean 3.20 with a standard deviation of 1.386, from the responses received from the students within district, most students are uncertain that, when students are asked to bring their own device to school, there can be significant disparities in device capability, such as what a cheap android phone can accomplish against what an iPad can do. Teachers may be

required to deliver several directions for a variety of gadgets, resulting in classroom distraction.

From table 14 most students were uncertain that, not everyone has technology at home is a factor that can distract teaching and learning process, this has mean of 3.11 and a standard deviation of 1.181.

4.5 Measures to Improve Teaching and Learning process Using ICT Tools.

To improve teaching and learning process using ICT tools, some selected measures were given teachers and students to come out with their views. Total of 95 and 195 responses were received from the teachers and students. Table 15 and table 16 show some of the measures that can put in place to improve teaching and learning process using ICT tools.

Table 15 For Teachers on Measures to Improve Teaching and Learning Process Using ICT Tools

Statement	SD	D	UN	A	SA
Personal and professional use of technology	3(3.2)	9(9.5)	11(11.6)	54(56.8)	17(17.9)
Effective training programme	6(6.3)	7(7.4)	12(12.6)	53(55.8)	17(17.9)
Application of technology in instruction	10(10.5)	7(7.4)	7(7.4)	52(54.7)	19(20.0)
ICT use as part of teaching method	3(3.2)	14(14.7)	16(16.8)	47(49.5)	15(15.8)
Teachers' pedagogical consideration of ICT tools	7(7.4)	20(21.1)	21(22.1)	39(44.1)	8(8.4)
Valid N(listwise)					

From: field survey, 2021. scale: SD = Strongly Disagree, D= Disagree, UN =Uncertain, A = agree, and SA = Strongly Agree.

Table 15 indicates the some of the measures that can be put in place to improve teaching and learning process. From the survey, most of the teachers agreed that personal and professional use of technology can improve teaching and learning process, 54 correspondents representing 56.8% of the teachers indicated that personal and professional use of technology by the teachers can improve teaching and learning process using ICT tools.

3 correspondents representing 3.2% strongly disagree that personal and professional use of ICT tools can improve teaching and learning process. 9 correspondents accounting for 9.5% of the teachers disagree that personal and professional use of ICT tools can improve teaching and learning method. 11 corresponding representing 11.6% of the teachers are uncertain that personal and profession use of ICT tools can improve teaching and learning process. 17 correspondents accounting for 17.9% of the teachers strongly agree that personal and professional use of ICT tools can improve teaching and learning process.

From table 15, 6 correspondents accounting for 6.3% of the teachers strongly disagree that Effective training programme can improve teaching and learning using ICT tools. 7 correspondents accounting for 7.4% disagree that effective training programme can improve teaching and learning using ICT tools. 12 correspondents representing 12.6% of the teachers are uncertain that effective training programme can improve teaching and learning using ICT tools. 53 correspondents accounting for 55.8% of the teachers agree that effective training and programme can improve teaching and learning process using ICT tools. 17 correspondents accounting for 17.9% of the teachers strongly agree that effective training programme can improve teaching and learning process using ICT tools.

From table 15, 10 correspondents representing 10.5% of the teachers strongly disagree that application of technology in instruction can improve teaching and learning process using ICT tools. 7 correspondents representing 7.4% of the teachers disagree that application of technology in instructions can improve teaching and learning process using ICT tools. 7 correspondents accounting for 7.4% of the teachers uncertain that application of technology in instructions can improve teaching and learning process using ICT tools. 52 correspondents accounting for 54.7% of the teachers agreed that application of technology in instructions can improve teaching and learning process using ICT tools. 19 correspondents representing 20.0% of the teachers strongly agreed that application of technology in instruction can improve teaching and learning process using ICT tools.

From table 15, 3 correspondents representing 3.2% of the teachers strongly disagreed that ICT tools use as part of teaching method can improve teaching and learning process using ICT tools. 14 correspondents representing 14.7 of the teachers disagreed that ICT tools as part teaching method improve teaching and learning process using ICT tools. 16 correspondents accounting for 16.8% of the teachers uncertain that ICT tools as part of teaching method can improve teaching learning process using ICT tools.

47 correspondents accounting 49.5% of the teachers agreed that ICT tools as part of teaching method can improve teaching and learning process using ICT tools. 15 correspondents representing 15.8% of the teachers strongly agreed that ICT tools as part of teaching method can improve teaching and learning method using ICT tools.

To improve teaching and learning process using ICT tools some selected statements were given to the students to come with their opinion on those selected statements, total

of 195 responses were received, the table 16 below depict students' responses on how to improve teaching and learning process using ICT tools.

Table 16 For Students on Improving Teaching and Learning Process using ICT

Tools

Statement	SD	D	UN	A	SA
Providing in-service training for teachers on ICT tools	18(9.2)	28(14.4)	31(15.9)	75(38.5)	43(22.1)
Parental control and guidance on usage of ICT tools	14(7.2)	26(13.3)	43(22.1)	69(35.4)	43(22.1)
Students not allow to bring their personal device to school	16(8.2)	37(19.0)	38(19.5)	66(33.8)	38(19.5)
Providing ICT tools technical support for students	16(8.2)	39(20.0)	43(22.1)	68(30.8)	37(19.0)
Provision of ICT tools infrastructure in schools	13(6.7)	46(23.2)	44(22.6)	73(37.4)	19(9.7)
Equal Accessibility of Internet in Schools	34(17.4)	33(16.9)	37(19.0)	55(28.2)	36(18.5)
Valid N (listwise)					

From: field survey, 2021. SD= Strongly Disagreed, D= Disagreed, UN =Uncertain, A= agreed, and SA = Strongly Agreed.

From Table 16, 18 correspondents representing 9.2% of the students strongly disagreed that providing in-service training for teachers on ICT tools improve teaching and learning process. 28 correspondents representing 14.4% of the students disagreed that providing in-service training for teachers on ICT tools improve teaching and learning process. 31 correspondents accounting to 15.9% of the students uncertain that providing in-service training to teachers on ICT tools can improve teaching and learning process.

75 correspondents accounting for 38.5% of the students agreed that providing in-service training to teachers on ICT tools can improve teaching and learning process. 43 correspondents representing 22.1% of the students strongly agreed that providing in-service training on ICT tools to teachers can improve teaching and learning process using ICT tools.

From table 16, 14 correspondents accounting for 7.2% of the students strongly disagreed that parental control and guidance on the usage of ICT tools can improve teaching and learning process using ICT tools. 26 correspondents accounting for 13.3% of the students disagreed that parental control and guidance on the usage of ICT tools can improve teaching and learning process using ICT tools. 43 correspondents representing 22.1% of the students uncertain that parental control and guidance on the usage of ICT tools can improve teaching and learning process using ICT tools. 69 correspondents representing 35.4% of the students agreed that parental control and guidance on usage of ICT tools can improve teaching and learning process using ICT tools. 43 correspondents representing 22.1% of the students strongly agreed that parental control and guidance on the usage of ICT tools can improve teaching and learning process using ICT tools.

From table 16, 16 correspondents representing 8.2% of the students disagreed that students not allowing to bring their personal ICT tools to schools can improve teaching and learning process using ICT tools. 37 correspondents representing 19.0% of the students disagreed that students not allowing to bring their personal ICT tools to schools can improve teaching and learning process using ICT tools. 38 correspondents accounting for 19.5% of the students uncertain that students not allowing to bring their personal ICT tools to school can improve teaching and learning process using ICT tools.

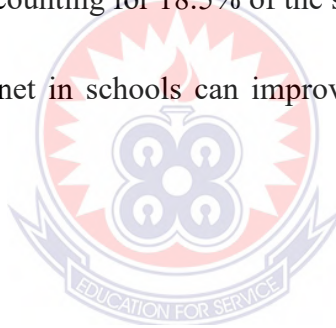
66 correspondents representing 33.8% of the students agreed that students not allowing to bring their personal ICT tools to schools can improve teaching and learning process using ICT tools. 38 correspondents accounting for 19.5% of the students strongly agreed that students not allowing to bring their personal ICT tools to school can improve teaching and learning process using ICT tools.

16 correspondents representing 8.2% of the students strongly disagreed that providing ICT tools technical support to for students can improve teaching and learning process using ICT tools. 39 correspondents representing 20.0% of the students disagreed that providing ICT tools technical support to for students can improve teaching and learning process using ICT tools. 43 correspondents representing 22.1% of the students Uncertain that providing ICT tools technical support to for students can improve teaching and learning process using ICT tools. 68 correspondents representing 30.8% of the students agreed that providing ICT tools technical support to for students can improve teaching and learning process using ICT tools. 37 correspondents accounting for 19.0% of the students strongly disagreed that providing ICT tools technical support to for students can improve teaching and learning process using ICT tools.

According to table 16, 13 correspondents accounting for 6.7% of the students strongly disagreed that provision of ICT tools infrastructure in school can improve teaching and learning process using ICT tools. 44 correspondents representing 23.6% of the students disagreed that provision of ICT tools infrastructure in school can improve teaching and learning process using ICT tools. 44 correspondents accounting for 22.6% of the student uncertain that provision of ICT tools infrastructure in school can improve teaching and learning process using ICT tools. 73 correspondents representing 37.4% of the students agreed that provision of ICT tools infrastructure in school can improve teaching and learning process using ICT tools. 19 correspondents representing 9.7% of the students

strongly agreed that provision of ICT tools infrastructure in school can improve teaching and learning process using ICT tools.

From table 16, 34 correspondents representing 17.4% of the students strongly disagreed that equal accessibility of Internet in schools can improve teaching and learning process using ICT tools. 33 correspondents representing 16.9% of the students disagreed that equal accessibility of Internet in schools can improve teaching and learning process using ICT tools. 37 correspondents representing 19.0% of the students uncertain that equal accessibility of Internet in schools can improve teaching and learning process using ICT tools. 55 correspondents representing 28.2% of the students agreed that equal accessibility of Internet in schools can improve teaching and learning process using ICT tools. 36 correspondents accounting for 18.5% of the students strongly agreed that equal accessibility of Internet in schools can improve teaching and learning process using ICT tools.



CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter talks about the outcome of the studies, observations, conclusions, recommendations, and research gaps for further studies.

5.1. Summary of the Study

The study aimed to determine the extent to which information and communication technology tools distract or improve teaching and learning at Asokore Manpong district. The research had three main objectives out of which the research questionnaires were developed. The research questions were categorized into two main parts that are questionnaires for teachers and students. The teacher's questionnaires had three parts demographics, experience in the use of information and communication technology tools for teaching and learning the last part was part whether information communication and technology tools improve teaching and learning or district teaching and learning, the students' questionnaires were in two-part that is demographic and yes or no on either information and communication technology tools distract or improve teaching and learning.

Teachers are in charge of the delivery of instructions therefore their knowledge in the use of information and communication technology in the classroom is very crucial in teaching and learning.

The background of the study talks about implementation of information and communication technology in advanced countries, developing countries and as were as Ghana, the literature was reviewed based on the three main objectives of the studies, the

methodology, discuss the instruments used for carrying out the research work, a total population of 1200 were target using Taro Yamane formula, 300 samples were expected from ten selected schools out of which, 295 participants responded to the questionnaires administered. Upon careful reviewed of the responses, 290 of them were good for analysis.

Qualification of the teachers play a major role in the use of information communication and technology, according to the studies, 45.3% of the teachers who participated in the studies are bachelor holders, the experience of the teachers also plays a major role in the use of information and communication technology in classroom, from table 3, 7.4% of the senior teachers within the district find it difficult in use information and communication technology tools for teaching and learning.

This 7.4% of the teachers are mostly formed part of the educational leadership in the various school, they find it difficult to embrace the technological change, therefore, they see no need to invest in them. Majority of the teachers within the district have working experience between 1-10 years which formed 40% of the total respondents 41% of the teachers within the district have access to personal computers thanks to the one teacher one laptop initiative by the government.

From the study, 26.3% of the teachers are very uncomfortable in the use of information and communication technology tools for teaching and learning, from the survey this indicates that the greater number of the teachers within the district find it difficult when it comes to the use of information and communication technology tools for teaching and learning. Teachers are instrumental when it comes to discharging instructions to students if they do not have the requisite knowledge in the usage of

information and communication technology for teaching and learning, they cannot use it to teach.

The extent to which ICT tools promote teaching and learning has seven Likert scale questions out of the seven most teachers within the district agreed that ICT tools can improve teaching and learning this has a mean of 4.32 with standard deviation of 1.138, this indicates that majority of the teachers strongly agree that ICT tools can improve teaching and learning. The last Likert scale question is ICT tools improve students' knowledge retention most of the teachers were uncertain that ICT tools can improve students' knowledge retention this has a mean of 3.67 with a standard deviation of 1.248.

Lack of ICT specialist teachers to teach students computer skills had a mean of 4.83 with a standard deviation of 1.082, indicating that the majority of teachers strongly believe that the lack of ICT specialist teachers to teach students computer skills distracts teaching and learning. The majority of teachers are unsure whether they need assistance managing pupils who use ICT tools, with a mean of 3.05 and a standard deviation of 1.318.

Most students within the district were with the view that, ICT brings about inclusion this can improve teaching and learning process, this had a mean of 4.51 with a standard deviation of 1.198. On the extent to which ICT tools improve teaching and learning process, most students agreed that ICT tools promote subject learning can improve teaching and learning process using ICT tools, this had a mean of 4.44 and a standard deviation of 1.246.

On measures to improve teaching and learning process using ICT tools, teachers agreed that personal and professional use of technology is one measure that can improve teaching and learning process, 54 participants representing 56.8% of the teachers

indicated that personal and professional usage of ICT tools by teachers can improve teaching and learning within the district. Most students within the district also agreed that providing in-service training for teachers on ICT tools is a measure that can improve teaching and learning process, 67 participants representing 39.0% of the students agreed that in-service training for teachers is a measure that improve teaching and learning.

5.1.1 Observations

Motivation and Confidence

The investigations discovered that one of the greatest challenges facing the district's teachers is a lack of enthusiasm and confidence. Teachers who have been teaching and studying in a traditional manner for more than ten years understand the benefits of employing information and communication technology in the classroom. Some teachers find it difficult to operate cellphones, and some teachers are afraid that if they employ information and communication technology tools for teaching and learning, they would make blunders that students will laugh at.

Teachers' attitude towards the use of information communication and technology tools for teaching and learning.

Some people find change difficult to accept, and some teachers are opposed to the use of ICT tools in the classroom, particularly by students. As a result, they have a negative attitude toward the use of information and communication technology tools in the classroom. Senior instructors, in particular, who lack ICT skills and are utterly opposed to the use of information, communication, and technology resources for teaching and learning. Because young instructors are skilled in the use of ICT tools, they can readily incorporate them into their lessons.

Gender and ICT

From table 1 and table 2 most female teachers and female students find it difficult to operate ICT tools. Because they rely on the conventional system of teaching and learning, it is difficult for them to embrace the use of ICT tools for teaching and learning.

Age and ICT

According to table 3, most senior instructors avoided answering the questionnaires because they were connected to information and communication technology tools (ICTs). This is because they lack ICT abilities. Those that agreed to take the questionnaire must be supervised. Junior teachers, on the other hand, are well-versed in the use of ICT tools. The majority of pupils, particularly those between the ages of 16 and 20, prefer ICT tools.

Technical Support.

Most teachers in the district require technical assistance in order to incorporate ICT tools into their lesson plans; as a result, some of the schools visited have teachers who want to use it but are unable to do so due to a lack of technical support; in one case, a student had to set up a projector for a teacher to use.

Access to Internet

The majority of the basic schools visited do not have internet connection, and those SHS that do have it are restricted to only a few sections within the schools, such as administration, staff common and ICT laboratory other areas such classrooms and scientific laboratories do not have access to the internet.

5.2 Conclusion

Today, ICT plays a major role in the economic development of every developed country, so if we truly want to develop as a country, we must consider how ICT can be used to improve our teaching and learning processes in our schools, as well as how we can reduce the distractions that ICT tools can cause during the teaching and learning process. The necessary training in the use of ICT technologies for teaching and learning should be provided to teachers. Senior tutors' attitudes regarding the use of ICT tools in schools should change, and the only way to do so is to educate them on the importance and necessity of incorporating ICT tools into our educational system. According to the survey conducted majority of the participants agreed that ICT tools can either improve or distract teaching and learning process.

5.3 Recommendations

According to the findings from the survey, it is recommended that;

1. Instructors should receive adequate training on how to use ICT tools in teaching and learning processes in order to gain the necessary knowledge and skills for integrating technology into classrooms.
2. Instructors should also be given enough technological tools, technical help, and administrative support in order to encourage them to use ICT tools effectively in their teaching and learning.
3. Students should be involved in using ICT in learning activities such as completing assignments and exploring the internet for learning resources since it is thought that ICT can improve teacher-student interaction and increase students' willingness to study.

4. Parents and teachers should work together to allow pupils to visit only the sites that have been recommended.
5. Students should be able to major in ICT as a degree at teacher education institutions, just as they do in other subjects.

5.4 Suggestion of Further Studies

1. Teachers' attitude towards the use of ICT tools in classroom.
2. Age and the use of ICT tools in teaching and learning.
3. Gender and the use of ICT tools for teaching and learning.



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APPENDIX

DATA COLLECTION INSTRUMENT ON INVESTIGATING THE
EXTENT TO WHICH INFORMATION AND COMMUNICATION TOOLS
DISTRACT TEACHING AND LEARNING PROCESS IN ASOKORE MANPONG
DISTRICT.

Please this survey is solely for academic purpose, your responses will be treated strictly
confidential

SECTION A QUESTIONNAIRE FOR TEACHERS

Please select your choice by ticking (✓) the appropriate answers in the space providing
below.

Demographic Information.

1. Select your gender

Male Female



2. Select your age by ticking (✓)

30 or less 31-35 36-45 46-55 more than 55

3. Select your religion by ticking (✓).

Christian Muslim Traditional Other

4. Indicate your educational qualification by ticking (✓)

Certificate Diploma Bachelor Postgraduate Other

5. Indicate the years of working with Ghana Education service by ticking (✓)

1-10 11-20 21-30 31 or More

To what extent does information and communication and technology tools promote teaching learning process.

Please tick the boxes and rate yourself on the scales below, SD= strongly, D= disagree,

UN = uncertain,

A= agree and SA = strongly agree.

S/N	ITEM	SD	D	UN	A	SA
	ICT tools Promote teaching and learning					
	ICT tools can improve teaching and learning process					
	ICT tools improve students' critical thinking skills					
	ICT tools can improve students' participation and feedback to teachers					
	ICT tools improve collaborative among teachers and students					
	ICT tools improve students' individual learning					
	ICT tools improve students' knowledge retention					

To what degree does information and communication and technology tools distract teaching learning process.

Please tick the boxes and rate yourself on the scales below, SD= strongly, D= disagree,

UN = uncertain, A= agree and SA = strongly agree.

S/N	Statement	SD	D	UN	A	SA
1	Lack of ICT specialist teachers to teach students computer skills					
2	Lack of teaching experience with ICT					
3	Not every teacher believes in using ICT tools in classroom					
4	Lack of time require to successfully integrate technology into the curriculum					
5	lack of on-site support for teachers using technology					
6	Lack of ICT related pedagogical skills					
7	Lack of ICT related Skills					
8	Lack of Confidence to try new technology					
9	lack of help supervising students using ICT tools					

What measures can be put in place to improve teaching and learning process using information and communication and technology tools.

Please tick the boxes and rate yourself on the scales below, SD= strongly, D= disagree, UN = uncertain, A= agree and SA = strongly agree.

S/N	ITEM	SD	D	UN	A	SA
1	Providing in-service training for teachers on ICT tools					
2	Parental control and guidance on usage of ICT tools					
3	Students not allow to bring their personal device to school					
4	Providing ICT tools technical support for students					
5	Provision ICT tools infrastructure in schools					
6	Equal Accessibility of Internet in Schools					

SECTION B QUESTIONNAIRE FOR STUDENTS'

Demographic of Students'

1. Indicate your gender by ticking (✓) appropriate box.

Male [] Female []

2. Indicate your age group by ticking (✓) appropriate age group

10 or less [] 11-15 [] 16-20 [] 21 or more []

3. Indicate your educational level by ticking (✓) appropriate box.

Basic [] JHS [] SHS []

To what extent does information and communication and technology tools promote teaching learning process.

Please tick the boxes and rate yourself on the scales below, SD= strongly, D= disagree, UN = uncertain, A= agree and SA = strongly agree.

S/N	ITEM	SD	D	UN	A	SA
1	Technology can affect lesson time and flow					
2	Teachers need more professional development					
3	Not everyone has technology at home					
4	Not all teachers 'believe' in using technology					
5	Lack of adequate ICT support, infrastructure, or time					
6	Tensions between students and teachers					
7	It's easy for students to be distracted					
8	Teaching with ICT takes more time					
9	Differing device capabilities and instructions					

To what degree does information and communication and technology tools distract teaching learning process.

Please tick the boxes and rate yourself on the scales below, SD= strongly, D= disagree, UN = uncertain, A= agree and SA = strongly agree.

S/N	ITEM	SD	D	UN	A	SA
1	ICT brings about inclusion					
2	ICT promotes subject learning					
3	ICT tools promote engagement and knowledge retention					
4	ICT tools promotes effective differentiation instruction with technology					
5	ICT promotes creative thinking					
6	ICT tools motivate teaching and learning					
7	ICT tools encourages collaborative learning					

What measures can be put in place to improve teaching and learning process using information and communication and technology tools.

Please tick the boxes and rate yourself on the scales below, SD= strongly, D= disagree,

UN = uncertain, A= agree and SA = strongly agree.

S/N	ITEM	SD	D	UN	A	SA
1	Providing in-service training for teachers on ICT tools					
2	Parental control and guidance on usage of ICT tools					
3	Students not allow to bring their personal device to school					
4	Providing ICT tools technical support for students					
5	Provision ICT tools infrastructure in schools					
6	Equal Accessibility of Internet in Schools					