TEACHERS' EXPERIENCE ON THE USE OF ICT TO FACILITATE TEACHING: A CASE OF ILALA DISTRICT SECONDARY SCHOOLS

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for the acceptance by The Open University of Tanzania a dissertation titled: "**Teachers' experience on the use of ICT to facilitate teaching: A Case of Ilala District Secondary Schools**" in partial fulfilment of the requirements for the Master's Degree of Education in Administration, Planning and Policy Studies of The Open University of Tanzania.

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DECLARATION

I, Mafang'ha Mathayo, do hereby declare that this dissertation is my own original work and that it has not been presented and it will not be submitted to any other University for a similar or any other award.

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DEDICATION

This dissertation is dedicated to my family who have continuously been supportive to me and helped in my efforts to accomplish this study.

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ABSTRACT

This survey study sought to explore " Teachers experience on the use ICT to facilitate teaching: A Case of Ilala District secondary schools", from the perspective of teachers. A sample of teachers, purposefully selected, were given questionnaires and then interviewed. The study mainly aimed at collecting views and opinions from teachers regarding their experiences on the use of ICT to facilitate teaching. The objectives guided this study were: to explore teachers opinions on the benefits of using ICT in teaching, to explore the barriers that hinder teachers from using ICT to facilitate teaching and to identify the factors determining the use of ICT to facilitate teaching. On examining the benefits of using ICT to facilitate teaching, the following were identified as the benefits of using ICT to facilitate teaching: - individualized interactivity, delivery of educational resources, access to global knowledge base, facilitate integration with resources, simplify teachers work. The study indicates that using ICT in teaching has benefits to teachers. teachers' attitude, teacher confidence and competence, unlimited access to ICT resources and facilities and lack of technical support, inadequate ICT infrastructure on ICT and lack of professional development were identified as the barriers hindering teachers to use ICT to facilitate teaching in secondary schools. On examining the factors determining the use of ICT in teaching in secondary schools, the study identified the following factors:- teachers' positive attitude, teachers' competence in ICT use, accessibility of ICT facilities, professional development and availability of technical support. Recommendations to improve the situation in using ICT in teaching are attached.

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LIST OF ABBREVIATIONS

BECTA   British Educational Communications and Technology Agency

BEST   Basic Education Statistics in Tanzania

CBET   Competence Based Education and Training

EMIS   Education Management Information Systems

ESDP   Education Sector Development Plan

FOSS   Free Open Source Software

ICT   Information and Communication Technology

MEST   Ministry Of Education Science and Technology

OUT   Open University of Tanzania

CHAPTER ONE

1.0 BACKGROUND OF THE STUDY

1.1   Introduction

This chapter covers the overview of the study, the background information to the problem, statement of the problem, objectives and the research questions which guided the researcher and the significant of the study.

1.2   Background Information

Information and Communication Technology (ICT) has become an important driver of everyday life and economic activity in the present world. The on-going technology revolution encompasses new ways of capturing, processing, storing and displaying information and is capable of increasing productivity and competitiveness through information provision (Mangesi, 2010). Moreover, ICT has been affiliated with the ability to integrate world economies and its role in the effectiveness, efficiency and service delivery of any institution is undoubtedly vital. The contribution of ICT in knowledge delivery and educational management in schools worldwide is massive. (Zhao & Frank, 2003).

The rapid growth in Information Communication and Technologies (ICT) have brought remarkable changes in the twenty-first century, as well as affected the demands of modern societies. ICT is becoming increasingly important in our daily lives and in our educational system. Therefore, there is a growing demand on educational institutions to use ICT to teach the skills and knowledge students need

for the 21st century. Realizing the effect of ICT on the workplace and everyday life, today's educational institutions try to restructure their educational curricula and classroom facilities, in order to bridge the existing technology gap in teaching and learning. This restructuring process requires effective adoption of technologies into existing environment in order to provide learners with knowledge of specific subject areas, to promote meaningful learning and to enhance professional productivity (Tomei, 2005).

Ministry of Education Science and Technology recognizes the potential of ICT a tool for improving education delivery, outcomes and impact, as evidenced through the national plans, policies and strategies. The Tanzania Vision 2025, the key national development strategy, recognizes the role of education as a strategic change agent for transformation of the economy to a knowledge economy, and identifies the potential of ICT to address most of the development challenges including those presented by education.

The National ICT Policy of 2003 recognizes that ICT can enhance education opportunities and advocates for the introduction of an e-education system. The Education Sector Development Plan (ESDP) recognizes the role of computer studies in fostering technological and scientific developments, with the education sector review reiterating the need to expand the use of ICT to improve on the quality of education. ICT has the potential to transform the nature of education: where and how learning takes place and the roles of students and teachers in the teaching process.

1.3   Statement of Problem

The introduction of ICT in education has a lot of benefits. Haddad and Draxler (2005) posit that ICT make valuable contribution to various aspects of education development and effective learning through expanding access, promoting efficiency, improving the quality of learning and enhancing the quality of teaching. According to Tinio (2003), appropriate use of ICT allows for collaborative learning where students interact with other students, teachers and experts regardless of where they are. Literature studies (Tedla, 2012 and Makgato, 2012) reveal that the successful integration of ICT in teaching and learning largely depends on teacher competency, availability of ICT infrastructure and teachers' adoption and embrace of ICT in education. How effective ICT is in assisting the teaching process is yet to be known in Ilala secondary schools, so this study intends to address the experiences of teachers in using ICT in their teaching focusing on: benefits of using ICT to facilitate teaching, barriers of using ICT to facilitate teaching and factors determining the use of ICT to facilitate teaching in eight selected secondary schools of Ilala District, Dar es salaam.

1.4   The Purpose of the Study

This study intended to investigate teachers' experience on the use of ICT to facilitate teaching in eight (8) selected secondary schools in Ilala District.

1.4.1 Objectives of the Study

The study was guided by the following objectives

i) To explore benefits of using ICT to facilitate teaching process in secondary schools in Ilala district.

ii) To explore the barriers of using ICT to facilitate teaching process in secondary schools in Ilala district.

iii) To identify factors determining the use of ICT to facilitate teaching in secondary schools in Ilala district.

1.4.2 Research Questions

The study was guided by the following research questions:

i) What are the benefits of using ICT to facilitate teaching process in secondary schools in Ilala district?

ii) What are the barriers of using ICT to facilitate teaching process in secondary schools in Ilala district?

iii) What are the factors determining the use of ICT to facilitate teaching in secondary schools in Ilala district?

1.5   Significance of Study

This study focuses on identifying how ICT can be used to facilitate the teaching process to enhance students understanding. The conclusion of the study will provide an insight on the benefits, barriers and measures needed to address ICT in teaching. The study could in the interest of both education stakeholders in the country and lead to the adoption of ICT based classroom teaching. The research study will also be used as guide for policy-makers, decision-makers and educational investors and other stakeholders to make well-informed decisions about ICT policies and investment in

ICT facilities and infrastructures in regards to education at the secondary level by understanding the perceptions of teachers in line with the utilization of ICT in facilitating teaching.

The findings of the study will inform the government and other interested party on the hindrances to the use of ICT to facilitate teaching, the information will enable the government to identify mechanisms that will ensure successful use of ICT to facilitate teaching in public secondary schools.

Additionally, the study will be beneficial in building a knowledge base of perceptions of teachers on the use of ICT to facilitate teaching. The knowledge may serve as a guide for overcoming challenges that teachers' face while using ICT to facilitate teaching in secondary schools. The study also will contribute to the existing literature on the use of ICT to facilitate teaching process in secondary schools.

1.6 Limitations of the Study and Delimitations of the study

The study was carried out in Ilala District, Dar es salaam, Tanzania. This may affect the generalization of the findings of the study to other districts. Also the study needed a lot of resources especially human resources, financial and time resources for its accomplishment in a valid and reliable manner. Therefore shortage of resources may limit its validity and reliability. The study was limited to Ilala District, thus the researcher was able to save on time and expenses by generalizing the data collected to the whole country.

1.7   Assumption of the Study

The researcher assumed that schools in Ilala District had necessary ICT infrastructures and use ICT to facilitate teaching process. It is upon this assumption that the researcher sought to investigate the teachers' experiences on the use of ICT to facilitate teaching and learning. The researcher also assumed that the respondents were to provide truthful and honest responses in relation to their experiences on the use of ICT to facilitate teaching process.

1.8   1.9 Organization of the Study

This study is presented in six chapters. The first chapter discusses the background and statement of the problem, purpose of the study, research questions, significance of the study, limitations of the study, scope and definition of key terms used in this study as well as organization of the study. Literature review is covered in chapter two. Chapter three covers and discusses the research methodology used. Data presentation is covered in chapter four. Analysis and discussion is covered in chapter five. The summary, conclusion and recommendations are presented in chapter six. The last part of the document provides a list of references as well as some of the instruments used to collect data for the study.

1.9   Chapter Summary

The chapter has provided introduction to the study. It has covered such areas as the background of the study and statement of the problem, purpose of the study, significance of the study, research questions, and limitations of the study and scope

of the study. The chapter ends with a narration of the organization of the study

report.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1   Introduction

This chapter presents a literature review in relation to the study. The reviewed literature functioned as a guideline for the study. The literature is discussed under the following subtopics: benefits of using ICT in teaching process, the barriers of using ICT in teaching, the factors determining the use of ICT to facilitate teaching.

2.2   Meaning of ICT

The acronym ICT stand for Information and Communication Technology and is defined as a "diverse set of technological tools and resources used to communicate, to create, disseminate, store and manage information Blurton (1999). These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephone. Teaching process is a means through which the teacher, the learner, the curriculum and other variables are organized in a systematic manner to attain pre-determined goals and objectives.

Information and Communication Technology is at the very heart of the educational process, consequently ICT-use in education has a long history. Much has been written about the use of film, radio, telephones, and television in education Cuban, (1986); De Korte (1967). Because access to digital tools, applications, and networks continues to grow worldwide and media are increasingly available in digital form, use of ICT in education is expected to increase dramatically.

As stated by Daniels (2002) ICT have become within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy. As described in the United Nations, (1999) report ICT cover Internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services, and other related information and communication activities.

The various kinds of ICT products available and having relevance to education, are such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counselling, interactive voice response system, audiocassettes, video and audio tapes and CD ROMs.

2.3   Benefits of Using ICT in the Teaching Process

Several studies from case studies to survey researches have been conducted about the importance of ICT and as why teachers use it. ICT can play various roles in learning and teaching processes. According to Bransford et al., (2000), several studies have reviewed the literature on ICT and learning and have concluded that it has great potential to enhance student achievement and teacher learning. Wong et al., (2006) point out that technology can play a crucial part in supporting face-to-face teaching and learning in the classroom. Many researchers and theorists assert that the use of computers can help students to become knowledgeable, reduce the amount of direct

instruction given to them, and give teachers an opportunity to help those students with particular needs. According to Gillespie (2006), new technologies can be used to enable students to collect information and interact with resources, such as images and videos, and to encourage communication and collaboration. Osborne and Hennessy (2003) identify that new technologies may also help to increase student motivation, facilitate clearer thinking, and develop interpretation skills with data. BECTA (2003) indicated that the success of the integration of new technology into education varies from curriculum to curriculum, place to place, and class to class, depending on the ways in which it is applied. Here under are a few highlighted benefits of using ICT to facilitate teaching:-

2.3.1 Individualized Interactivity

Traditional pedagogic methods focused on a passive one-way flow of information from teachers to students. World Bank (2004) reports that recent trends towards a constructivist approach to teacher-student interaction suggests that learning process can be enhanced through use of technologies which adapt the presentation of needs, preferences and requests. Due to the interactive nature of most of the ICT technologies, it is well suited for creative learning approach in which experimentation and creative thinking skills are emphasized.

2.3.2 Delivery of Educational Resources

ICT can be used to provide immediate up to date resources using one or more media to large numbers of educators and learners easily and relatively cheaply. Any changes made to resources are easily available to educators and students without

incurring major additional distribution costs. An additional benefit is the huge resource base that resides on the World Wide Web. Tinio (2003) asserts that ICT has the ability to transcend time and space making possible asynchronous learning. Online materials can be accessed 24 hours a day, seven days a week. ICT has enabled instructions to be received simultaneously by multiple geographically dispersed learners to be able to access resource persons, learning resources, mentors and professionals from all over the world.

2.3.3 Access to Global Knowledge Base/Internet

Perhaps the clearest benefit to education from ICT according to World Bank report (2004) comes from ability to share knowledge, experiences with an emerging networked global community. Students can actively search for their counter parts in other countries to develop joint research projects on a variety of topics e.g. environment or health issues. The same technology allows students and wider community access to both global and local cultural resources.

2.3.4 Facilitating Interaction with Resources

According to Bullock (2004) ICT provides educators with a wide range of very interesting opportunities for creating resources that allow learners high levels of interactivity. This can lead to creation of interesting and exciting interaction of learners with educational resources.

2.3.5 Simplify Teaching Job

Plomp et al., (2007) states that use of ICT such as videos, television and multimedia computer software that combine text, sound and colourful moving images can be

used to provide challenging, authentic content that will engage students in the learning process. Moreover networked computers with internet connectivity can increase learner motivation as it combines the media richness and interactivity of other.

2.4   Barriers that Hinder Teachers from Using ICT in the Classroom Teaching

The act of integrating ICT into teaching is a complex process and one that may encounter a number of difficulties. Schoepp (2015) defines barrier as any condition that makes it difficult to make progress or to achieve an objective. There are several factors that inhibit the use of ICT into classroom instruction. Some factors are school base (internal) while some are community base (external) and teacher's personal issue. Researches identify these factors as non-manipulative and manipulative factors. Non-manipulative refers to the factors, such as age, teaching experience, computer experience. Manipulative factors are availability of ICT infrastructures, government policy and the availability of external support; attitude, phobia, interests, skill level in using computer etc.

2.4.1 Teachers' Attitude Towards the Use of ICT and Teachers' ICT Knowledge and Skills

Attitude is a predisposition to respond favorably or unfavorably to an object, person, or event Ajzen (1988). To successfully initiate and implement ICT in teaching depends strongly on teachers' support and attitudes. Among the factors that influence successful integration of ICT into teaching is teacher's attitudes and beliefs towards technology (Hew, K.F & Brush, 2007) and (Keengwa, J & Onchwari, G,

2008). Attitudes toward ICT influence teachers acceptance of the usefulness of technology, and also influence whether teachers integrate ICT into their classrooms. Many theorists (e.g., van Braak, 2001b; Vannata & Fordham, 2004) have maintained that teachers' attitudinal factors have a strong impact on technology integration in teaching. Attitude is an important concept in social judgments and behaviors and thus, is one of the most important concepts in decision making, Venkatesh et al., (2003).Teacher attitude is one of the most critical factors that enhance or inhibit the integration of ICT into classroom instruction. In a report by BECTA (2004) on ICT integration in education it was reported that negative attitude was a barrier towards integration of using ICT in teaching while Rhoda and Gerald (2000) found that positive attitudes towards ICT use are widely recognized as a necessary condition for effective ICT use in teaching. Moreover Selewyn (1999), insists that integration of ICT in teaching depends to a great extent, on teachers' attitude towards their use. Myers and Halpin (2002) assert that attitude of teachers towards ICT use is a major predictor of future classroom use.

Furthermore a study by Bullock (2004) found that teacher's perceptions are a major enabling/disabling factor in the implementation of ICT based teaching approach. Similarly, a study by Kersaint et al., (2003) found that teachers, who have positive attitude towards ICT based teaching feel more comfortable with using it and usually exploit it in their teaching. Essentially, Woodrow (1992) asserts that any successful implementation of ICT based teaching and learning approach requires the development of positive teacher's attitude toward information and communication technology.

2.4.2 Teacher Competence and Confidence

ICT competence is defined as being able to handle a wide range of varying technologies for various purposes. According to Prestride (2012) ICT aided teaching is the most appropriate skill required of a teacher, unfortunately, it is the least possessed by many. This may be because it is barely been part of their training course. Prestride (2012) outlined some of ICT packages required of a secondary school teacher as data processing, word processing, use of internet, use of spreadsheet, use of presentation software like PowerPoint and e-mail.

These ICT packages are important to teachers because they assist in creating lesson plans, analysing and setting students' tests, acquiring new knowledge and presenting lesson in a clear way among others.

According to (Bordbar, 2005) teachers" computer competence is a major predictor of integrating ICT in teaching. According to (Al-Oteawi, 2002) majority of teachers who reported negative or neutral attitude towards the integration of ICT into teaching and learning processes lacked knowledge and skills that would allow them to make "informed decision". A study by Peralta, and Costa, (2007) suggest that teachers with more experience with computers have greater confidence in their ability to use them effectively. To conclude, (Jones, 2005) reported that teachers competence relate directly to confidence. Teachers" confidence also relate to their perceptions of their ability to use computers in the classroom, particularly in relation to their children's perceived competence.

A very significant determinant of teachers' levels of engagement in ICT is their level of confidence in using the technology. Teachers who have little or no confidence in using computers in their work will try to avoid them altogether, Dawes (2000). According to BECTA (2004), much of the research proposes that this is a major barrier to the uptake of ICT by teachers in the classroom.

Some studies have investigated the reasons for teachers' lack of confidence with the use of ICT. Beggs (2000) asserted that teachers' "fear of failure" caused a lack of confidence. On the other hand, Balanskat et al., (2006) found that limitations in teachers' ICT knowledge makes them feel anxious about using ICT in the classroom and thus not confident to use it in their teaching. Many teachers who do not consider themselves to be well skilled in using ICT feel anxious about using it in front of a class of children who perhaps know more than they do.

On the other hand, teachers who confidently use technologies in their classrooms understand the usefulness of ICT. Cox et al., (1999) found that teachers who have confidence in using ICT identify that technologies are helpful in their teaching and personal work and they need to extend their use further in the future.

Another barrier, which is directly related to teacher confidence, is teachers' competence in integrating ICT into pedagogical practice BECTA (2004). In Australian research, Newhouse (2002) found that many teachers lacked the knowledge and skills to use computers and were not enthusiastic about the changes and integration of supplementary learning associated with bringing computers into

their teaching practices. Current research has shown that the level of this barrier differs from country to country. In the developing countries, research reported that teachers' lack of technological competence is a main barrier to their acceptance and adoption of ICT Pelgrum (2001). In Syria, for example, teachers' lack of technological competence has been cited as the main barrier, Albirini (2006).

Likewise, in Saudi Arabia, a lack of ICT skills is a serious obstacle to the integration of technologies into science education Al-Alwani (2005). Muriithi (2005) has argued that in Kenya like most developing countries ICT usage is still limited to computer literacy training. Both the findings show that teachers who do not use computers in classrooms claim that "lack of ICT skills" is a constraining factor preventing teachers from using ICT for teaching. Hence, lack of teacher competence may be one of the strong barriers to the integration of technologies into education. It may also be one of the factors involved in resistance to change.

2.4.3 Limited access to ICT facilities

Access to ICT infrastructure and resources in schools is a necessary condition to the integration of ICT in education. Inaccessibility or unavailability of ICT, a school level barrier, has been identified as a key obstacle that impedes teachers from using ICT in teaching. Shortage of resources includes different factors, such as lack of access to hardware and software, poor quality hardware and inappropriate software. Effective adoption and integration of ICT into teaching in schools depends mainly on the availability and accessibility of ICT resources such as hardware, software, etc. Obviously, if teachers cannot access ICT resources, then they will not use them.

Therefore, access to computers, updated software and hardware are key elements to successful adoption and integration of technology.

Several research studies indicate that lack of access to resources, including home access, is another complex barrier that discourages teachers from integrating new technologies into classrooms, Bingimlas (2009). A study by Yildrim (2007) found that access to technological resources is one of the effective ways to teachers' pedagogical use of ICT in teaching. Access to hardware and software is not only important, but also the use of suitable kind of tools and programme to support teaching and learning Tondeur et al., (2008).

The inaccessibility of ICT resources is not always merely due to the non-availability of the hardware and software or other ICT materials within the school. It may be the result of one of a number of factors such as poor organisation of resources, poor quality hardware, inappropriate software, or lack of personal access for teachers. The level of access to ICT at school is defined as teachers' access to infrastructure, provision shortages and inadequacy, and teaching time using ICT.

2.4.4 Teaching Experience

Though some research reported that teachers" experience in teaching did not influence their use of computer technology in teaching (Neidarhauser, & Stoddart, 2001) most research showed that teaching experience influence the successful use of ICT in classrooms Wong et al., (2008). In her study Gorder, (2008) revealed that effective use of computer related to technological comfort levels and the liberty to

shape instruction to teacher -perceived student needs. Also, Beak et al., (2008) claimed that experienced teachers are less ready to integrate ICT into their teaching. Similarly, in United States, the (U.S National Centre for Education Statistics, 2000) reported that teachers with less experience in teaching were more likely to integrate computers in their teaching than teachers with more experience in teaching. The reason to this disparity may be that fresh teachers are more experienced in using the technology. Furthermore, a meta-analysis and review of 81 research studies by (Rosenet al., 1990) concluded that teachers teaching experience does not eliminate computer phobias and many experienced teachers display some wariness, discomfort and/or mild anxiety in relation to computers.

2.4.5 Inadequate ICT Infrastructure

East African Countries suffer the inadequacy of technological infrastructure, such as hardware, software, limited internet access, poor bandwidth, sporadic electricity, geographical factors, such as country size, mountains, demographic factors, such as high population, increased density, and extreme poverty, HIV/AIDS, lack of teachers' participation in curriculum development and evaluation, lack of pre-service and in-service training, teachers' brain drain to the western countries, poor teachers' welfare and morale, lack of parent and community participation in schools, poor school vision, mission and leadership. Behrane (2012).

According to (Hennessy et al, 2010) relatively few teachers identified infrastructure problems, such as the lack of computers in working condition, unreliable electricity or lack of access to the internet, although these varied by country.

2.4.6 Professional Development

Teachers' professional development is a key factor to successful integration of computers into classroom teaching. In their study (Bauer et al ., 2005) revealed that whether beginner or experienced, ICT related training programmes develop teachers' competences in computer use, influence teachers' attitudes towards computers as well as assisting teachers reorganize the task of technology and how new technology tools are significant in teaching. Ertmer et al., (2003) indicated that beginning teachers wanted to use technology and have adequate technical skills, but teachers lacked knowledge on how to integrate technology in teaching. Clearly, it is imperative to allow teacher trainees to apply ICT in their programmes when in school in order to be able to use the technology to supplement their teaching activities. Teachers when given time to practice with the technology, learn, share and collaborate with peers, it is likely that they will integrate the technology into their teaching. Training programmes so for teachers that embraces educational practices and strategies to address beliefs, skills and knowledge improve teachers' awareness and insights in advance.

The barrier most frequently referred to in the literature is lack of effective training. In order to achieve high levels of teacher competence in ICT, there is a need to provide training, and perhaps unsurprisingly, there is a great deal of literature evidence to suggest that effective training is crucial if teachers are to implement ICT effectively in their teaching Kirkwood et al., (2000). Recent research in Turkey found that the main problem with the implementation of new ICT in science was the insufficient amount of in-service training programmes for science teachers, Özden (2007), and

Toprakci (2006) concluded that limited teacher training in the use of ICT in Turkish schools is an obstacle.

2.4.7 Lack of Technical Support

Without both good technical support in the classroom and whole-school resources, teachers cannot be expected to overcome the barriers preventing them from using ICT Lewis (2003). Pelgrum (2001) found that in the view of primary and secondary teachers, one of the top barriers to ICT use in education was lack of technical assistance.

Technical problems were found to be a major barrier for teachers. These technical barriers included waiting for websites to open, failing to connect to the Internet, printers not printing, malfunctioning computers, and teachers having to work on old computers. "Technical barriers impeded the smooth delivery of the lesson or the natural flow of the classroom activity" Sicilia, (2005). ICT support in schools helps teachers to use ICT in teaching without losing time through having to fix software and hardware problems. BECTA (2004) reports that clearly, there is a close relationship between two technical barriers; the more frequently that actual breakdowns occur (perhaps due to the lack of preventative technical maintenance), the more likely teachers are to avoid using the technology in the first place. The report proceeds, it was found that teachers who tried to carry out a task on a computer, but who were unsuccessful due to technical problems, would then avoid using the computer for several days. This, then, further highlights the need for adequate technical support in schools.

In general, several studies have identified a range of the following or similar factors as widespread barriers: lack of computers, lack of quality software, lack of time, technical problems, teachers' attitudes towards computers, poor funding, lack of teacher confidence, resistance to change, poor administrative support, lack of computer skills, poor fit with the curriculum, lack of incentives, scheduling difficulties, poor training opportunities, and lack of skills on how to integrate ICT in education.

2.5   Factors Determining the Use of ICT to Facilitate Teaching in Secondary Schools

In order to ensure that ICTs is widely adopted and used in classrooms in secondary schools, the following practices should be taken into consideration. Successful implementation of ICT based teaching and learning depends largely on the positive interest of teachers, who eventually determine how they exploit and implement ICT based teaching in the classroom, Bullock (2004).

2.5.1 Attitude towards ICT

Drent and Meelissen (2007) in their study have established that a positive ICT attitude has a direct positive influence on the innovative use of ICT by the teacher. Positive attitudes often encourage less technologically capable teachers to learn the skills necessary for the implementation of   technology-based activities in the classroom. In their study Harrison and Rainer (1992) found that participants with negative attitudes towards ICT were less skilled in ICT use and were therefore less likely to accept and adapt to technology than those with positive attitudes. They

concluded that changing individuals' negative attitudes is essential for increasing their computer skills. Keengwe and Onchwari, (2008) identify that the positive attitude of the teachers towards the ICT is very much affected by the experience of the teachers with ICT. Therefore, if teachers want to successfully use technology in their classes, they need to possess positive attitude to use technology. Such attitude is developed when teachers are sufficiently comfortable with technology and are knowledgeable on its use.

2.5.2 Competence in ICT Use

Van et al., 2004 define ICT competence is the ability of handling various applications on ICT for more than one purpose. According to Bordar (2010) one of the major predictors of ICT integration into teaching is competence of the teacher and this helps a lot in successful integration of ICT in teaching. According to Pelgrum (2001), the success of educational innovations depends largely on the skills and knowledge of teachers. Also, he found that teachers' lack of knowledge and skills was the second most inhibiting obstacle to the use of ICT in teaching. Knezek and Christensen (2000) postulated that educators with higher levels of skill, knowledge using ICT would exhibit higher levels of using ICT to facilitate teaching in the classroom. Moreover, Berner (2003) concluded that teachers should develop their competence based on the educational goals they want to accomplish with the help of ICT.

2.5.3 Computer Self-efficacy

Research has been conducted on teacher's self-efficacy and reported to have greater

effect on their use of ICT. Self-efficacy is defined as a belief in one's own abilities to perform an action or activity necessary to achieve a goal or task (Bandura, 1997). In real meaning, self-efficacy is the confidence that individual has in his/her ability to do the things that he/she strives to do. Thus teachers' confidence refers both to the teachers' perceived likelihood of success on using ICT for educational purposes and on how far the teacher perceives success as being under his or her control (Peralta &Costa, 2007).). Teachers' computer self-efficacy is described as a judgment of their capability to use a computer (Compeau & Higgins, 1995). According to Liaw, Huang and Chen (2007), teachers' computer self-efficacy influences their use of ICT in teaching and learning. Similarly, (Yuen & Ma, 2008) revealed that the Hong Kong teachers' implementation of ICT was depended on simplicity of computer use and perceived teacher self-efficacy. According to Jones (2004), teachers feel reluctant to use computer if they lack confidence. "Fear of failure "and "lack of ICT knowledge" (Balanskat et al., 2007) have been cited as some of the reasons for teachers' lack of confidence for adopting and integrating ICT into their teaching. Similarly, in a survey conducted by (BECTA, 2004), approximately 21% of the teachers who were surveyed, reported that lack of confidence influence their use of computers in their classrooms. BECTA (2004,p.7) stated that "many teachers who do not consider themselves to be well skilled in using CT feel anxious about using it in front of a class of children who perhaps know more than they do"

2.5.4 Teacher' Working Experience

Gorder (2008) reported that teacher experience significantly correlated with the actual use of technology. Also, Baek, Jong & Kim (2008) claimed that experienced

teachers are less ready to integrate ICT into their teaching. Similarly, in United States, the (U.S National Centre for Education Statistics, 2000) reported that teachers with less experience in teaching were more likely to integrate computers in their teaching than teachers with more experience in teaching.

2.5.5 Professional Development

Teachers' professional development is a key factor to successful integration of computers into classroom teaching. Several studies have revealed that whether beginner or experienced, ICT-related training programs develop teachers' competences in computer use (Bauer & Kenton, 2005; Franklin, 2007; Wozney et al., 2006) influences teachers' attitudes towards computers (Hew and Brush, 2007; Keengwe and Onchwari, 2008) as well as assisting teachers reorganize the task of technology and how new technology tools are significant in student learning (Plair, 2008). Pellegrino (2007) claim that tteachers may adopt and integrate ICT into their teaching when training programs concentrate on subject matter, values and the technology. BECTA (2008). Teachers' understanding of content knowledge and how to apply technology to support students' learning and attainment are joined to their increase in knowledge level, confidence and attitudes towards technology. Educators who integrate technology with new teaching practices gained through professional training can transform the performance of the students (Lawless & Pellegrino, 2007).

2.5.6 Accessibility

Access to ICT infrastructure and resources in schools is a necessary condition to the integration of ICT in education (Plomp et al., 2009). Effective adoption and integration of ICT into teaching in schools depends mainly on the availability and

accessibility of ICT resources such as hardware, software, etc. A study by Yildrim (2007) found that access to technological resources is one of the effective ways to teachers' pedagogical use of ICT in teaching.

2.5.7 Availability of Technical Support

BECTA (2004) agreed that if there is a lack of technical support available in a school, then it is likely that technical maintenance will not be carried out regularly, resulting in a higher risk of technical breakdowns. Jones (2004) reported that the breakdown of a computer causes interruptions and if there is lack of technical assistance, then it is likely that the regular repairs of the computer will not be carried out resulting in teachers not using computers in teaching. The effect is that teachers will be discouraged from using computers because of fear of equipment failure since no one would give them technical support in case there is technical problem.

2.5.8 The Conceptual Framework

In light of the review of literature and discussion presented above, more research is required into the teachers' experiences on the use of ICT to facilitate teaching. A provisional framework has been developed, and is now presented, that may be used as the basis for such an investigation (Figure 1). The framework indicates that both institutional and individual factors influence on the use of ICT to facilitate teaching. Institutional factors include institutional enablers and barriers, while Individual factors include attitude towards ICT use in teaching, competence and confidence, professional development, education level, Age and Gender as stimuli and barriers. The framework allows for the investigation of other factors that influence the adoption and integration of ICT in teaching that have not been

previously identified in other contexts. Moreover, the framework indicates that lessons learnt from past experiences with the adoption and integration of ICT in teaching may impact on future activities.
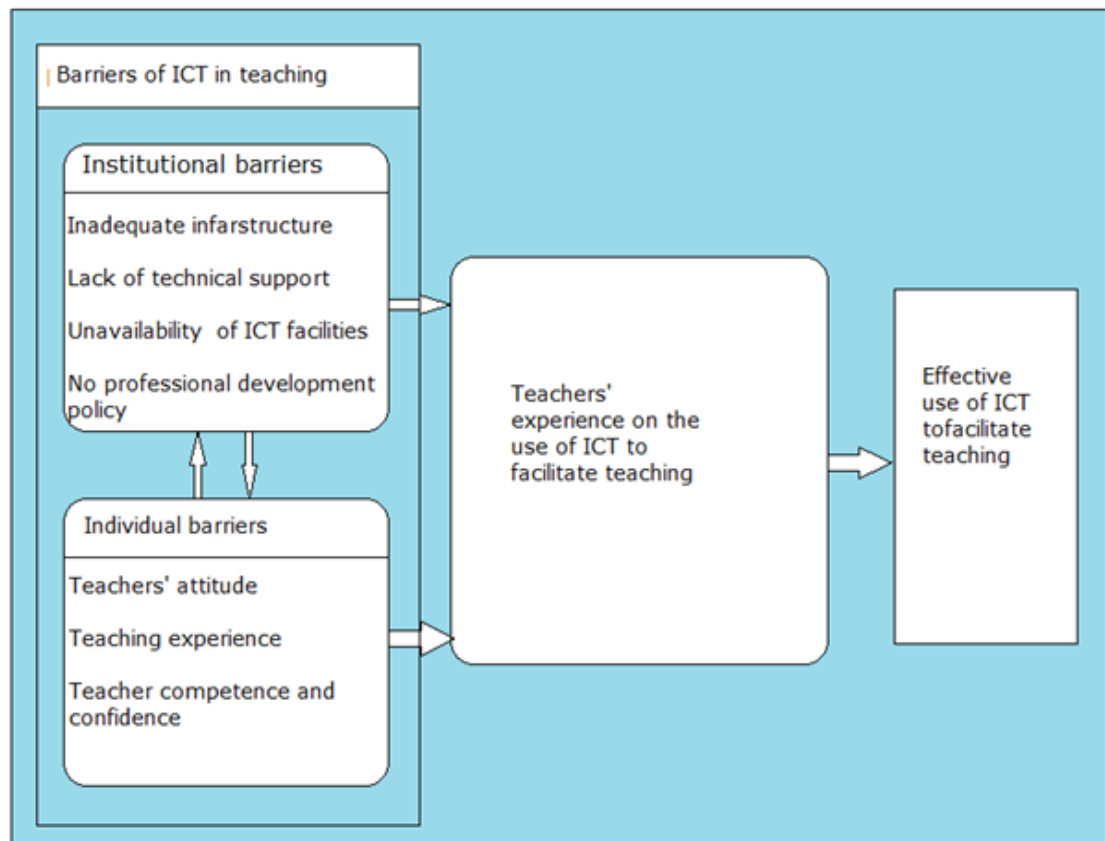
Figure 2.1:   A Conceptual Framework for Teachers' Experience on the Use of ICT to Facilitate Teaching in Secondary School

Source: Researchers Own (2015)

2.5.9 Research Gap

The literature reviews indicates that cases of ICT use in classroom teaching have been studied in other countries in Africa and outside the continent. Most of these studies were conducted to assess the effectiveness of ICT usage in teaching. Very few literature have been conducted to assess the experiences of teachers in use of

ICT to facilitate teaching in classroom in secondary schools in Ilala district. Thus, this study intends to focus on this gap of knowledge.

2.5.10 Summary of the Literature Review

In this chapter, attempts were made to learn from the literature, theoretical and empirical knowledge for several issues concerning this study. The review of literature revealed issues like, teachers attitudes, teacher competence and confidence, accessibility, inadequate ICT infrastructures, lack of technical support and lack of effective training as the barriers that hinders the use of ICT to facilitate teaching. Furthermore, the review of literature identified issues such as individual interactivity, delivery of education resources, and access to global knowledge base and facilitate interaction with education resources as the benefits of using ICT to facilitate teaching. In addition to that issues such as positive attitude towards ICT, competence in ICT use, computer self-efficacy, teacher' working experience, professional development, accessibility, and availability of technical support were identified as the factors influencing the effective use of ICT to facilitate teaching in secondary schools. Thus, this study emanates from the thirst of the researcher to explore teachers' experiences on the use of ICT to facilitate teaching and learning in selected secondary schools in Ilala District Council.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter focused on methods which were used to conduct the research. The chapter covered the area of research design, coverage of the study population, sampling procedures and techniques, data collection instruments and data analysis procedures. Ethics which guided this study was also presented.

3.2 Research design: Descriptive Survey

Ranjit Kumar (2005) defines research design as a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problem. Bryman (2008) discusses that research design provides a framework for the collection and analysis of data. Burns and Grove (2001) describe the research design as a blueprint for conducting a study that maximises control over factors that could interfere with the validity of the findings. The research design guides the researcher in planning and implementing the study to achieve the intended goal. The control provided by the design increases the probability that the study results are accurate reflections of the real situations.

This study employed a descriptive survey design. Descriptive survey was used to gather information on teachers' experiences on the use of ICT to facilitate teaching and learning in secondary schools in Tanzania. Descriptive survey research design was preferred because information was readily obtainable from teachers in their

natural environment, concerning their attitudes or beliefs on certain issues of the study. Descriptive survey research design presents an opportunity to fuse both quantitative and qualitative data as a means to reconstruct the "what is" of a topic /study. Trochim (2006) states that a survey research design is a very valuable tool for assessing opinions and trends. The main purpose of a descriptive survey design is to obtain information from a defined set of people so as to generalize the sample results to the population.

In the case of this study, descriptive survey design was deemed appropriate because of the following reasons;

- **High representativeness**. Surveys provide a high level of general capability in representing a large population. Due to the usual huge number of people who answers survey attempt to produce a numerical or mathematical representation of the study that can be used as a basis for planning and decision making.

- **Low Costs**. When conducting surveys, the cost incurred is for the production of survey questionnaires. Questionnaires involve less cost in preparation and even during administration compared to other tools. Like interviews which take time to be completed hence implying more costs.

- **Convenient Data Gathering.** Surveys can be administered to the participants through a variety of ways. The questionnaires can simply be sent via e-mail or fax, or can be administered through the Internet.

- **Little or No Observer Subjectivity.** Surveys studies because they provide all the participants with a standardized stimulus. With such high reliability obtained, the researcher's own biases are minimised. The tools like questionnaire when

used in data collection eliminates physical presence of the researcher when filling the questionnaire hence the respondent doesn't feel inferior. A questionnaire also gives the respondent time and freedom to reassess their responses by allowing the respondent to fill the questionnaire at their own convenience.

The descriptive survey design was, therefore, selected because the researcher wanted to ascertain the attitudes, opinions, views and feelings of teachers on their experiences as they use ICT in classroom teaching. The design was also selected due to its ability to enable the researcher to obtain and to administer the questionnaire to a large sample.

3.3   Limitations of the Descriptive Survey Research Design

The first limitation of the descriptive survey research design is that without control of independent variable variation, the researcher cannot be certain whether the relations between independent and dependent variables are causal or non-causal. That is, a survey may establish that A and B are related, but it is impossible to determine solely from the survey results that A causes B. Causality is difficult to establish because many intervening and extraneous variables are involved. Time series studies help correct this problem sometimes, but not always.

A second limitation of descriptive survey research design is that inappropriate wording and placement of questions within a questionnaire can bias the results. The questions must be worded and placed to unambiguously format to elicit the desired information / responses.

3.4   Area of the study

3.4.1 Choice of Ilala District

The Ilala district is the area where the study was conducted. The choice of Ilala district was made based on the researcher's familiarity of the locality, the accessibility of the locality which made easy for the researcher to develop immediate rapport with the respondents hence making data collection less cumbersome. Singleton (1993) states that, the ideal setting is one that is related to the researcher's interest, is easily accessible and allows the development of immediate rapport with respondents. Choosing a district other than Ilala District could take the researcher's more time, could have extended research processes and make the data collection plan difficult to execute.

3.5   Research   Population and Sample

Target population refers the grouping from which the researcher intends to gather information related to the stated problem. Burns and Grove (2001) define population as a group of people who share common traits or attributes of interests to researcher. That is to say population is total number of elements identify for study. However, a sample is a small group of respondents drawn from a population that the researcher is interested in gaining target information.

The target population of this study included: Secondary school subject teachers Teachers were targeted in this study because they are the major agents of ICT implementation in teaching process. In this study the population consisted was consulted to give out their opinions respectively.

3.6   Sample and Sample   Size

The sample units for the study consisted of 8 public and private secondary schools in Ilala district those which have ICT facilities within their campuses and those who do not have. The study targeted teachers in respective secondary schools. The sample size for this study involved an approximate of 70 teachers from 8 different secondary schools. The 70 respondents constituted approximately 70% of the targeted population. According to Gay and Airasian (2003), a sample size of between 10 and 20 percent of the total population is representative of the population is therefore appropriate for a descriptive survey study. A total of 10 respondents were sampled from each school.

3.7   Sampling Methods

The study used purposive sampling to identify the respondents for this study. Purposive sampling was adopted for this study considering the researchers available knowledge concerning the sample subject, it provides control over significant variables of the study, homogeneity of subjects in the sample. This sampling method was adopted in order to allow the researcher to concentrate on people with particular characteristics who will be able to assist the researcher with the relevant research. Furthermore purposive sampling offers advantages such as, it is easy to select a sample, it is not expensive and short time is used to select a sample and, results of purposive sampling are usually more representative of target population compared to other sampling methods. To get the sample 8 schools were purposely picked. And to get respondents for the study the researcher purposely picked teachers with the help of the principals and heads of departments.

3.8   Sources of Data

The sources of data for this study were teachers from 8 different secondary schools 5 secondary schools have ICT facilities, computer laboratory etc., and 3 secondary schools does not have ICT facilities. In order to obtain primary data questionnaire and interview were employed.

3.8.1 Primary data

Kothari (2004) defines primary data as data which are collected freshly and for the first time and which happen to be original in character . The primary data for this study was obtained from teachers through interview and questionnaire.

3.8.2 Research Instruments

This section describes the methods of collecting data for the study. Questionnaires and Interview schedules were used as instruments for data collection.

3.8.3 Questionnaires

This is a data collection instrument mostly used in normative surveys. This is a systematically prepared form or document with a set of questions deliberately designed to elicit responses from respondents or research informants for the purpose of collecting data or information. Questionnaires serves four basic purposes: to collect the appropriate data, make data comparable and amenable to analysis, minimizes bias in formulating and asking question, and to make questions engaging and varied.   In this study a form of inquiry document, which contains a systematically compiled and well organised series of questions intended to elicit the information which will provide insight into the nature of the problem under study.

The questionnaires were distributed to teachers. Closed and open end questions were prepared to guide the researcher so as to enable the respondents to provide exact responses as per the research study.

3.8.4 Interview

Interview is a method of collecting data which involves formal form face-to-face conversation between the researcher and a respondent, Kothari (2004). Interviews become necessary when researchers feel the need to meet face-to-face with individuals to interact and generate ideas in a discourse that borders on mutual interest. It is an interaction in which oral questions are posed by the interviewer to elicit oral response from the interviewee. In this study interviews was adopted to help the researcher to gather relevant information from the teachers on their experience about use of ICT in teaching. Both structured and non-structured interview were adopted during gathering of data from respondents.

3.8.5 Administration of Research Instruments

The researcher administered all the research instruments to all respondents by himself. This allowed the researcher to collect first-hand information. Questionnaires were distributed to teachers and they were given enough time to fill them. The researcher conducted an interview to teachers and a brief notes were taken for data analysis.

3.8.6 Data Analysis Techniques

Kombo et al., (2006) refers data analysis to the examination of data. Data analysis involves uncovering, extracting important variables, detecting any variances and

testing any underlying assumptions. Data gathered in this study were both quantitative and qualitative.

Primary data collected from the field was edited first to eliminate the misplaced responses given during the collection of the data. The responses were then coded for analysis. Coding was done to summarize the responses given by the respondents for analysis. The coded items were analysed with the aid of a computer using Statistical Package for Social Sciences (SPSS) version 20 as a tool for analysis. Data collected through Interviews were analysed by using themes approach. The responses information was first read by the researcher. Secondly, the data was placed in sub topics of the study as per the objectives of the study. i.e. all responses about barriers were grouped together. Third step was to reread the common patterns in each category, and decide which to take and which to leave out. Fourth, was to write narrates in each category using quotes from interviewees. The fifth step was to interpret narrates from respondents to gain meaning out of it. All categories of data were led by the research questions.

3.8.7 Validation of Data Collection Tools

Validity is an important aspect of an effective research. If research tools aren't valid may affect the effectiveness of a research. Therefore validity of data collecting tool is very important for both quantitative and qualitative research Cohen (2007). Data collection tools validation involves determining the quality of data collecting tools or procedures that is able to measure what it is supposed to be measured Kombo & Tromp (2006). To attain validity the instruments were sent to the supervisor during

proposal writing for suggestions, recommendations and advice. The instruments were presented to experts in the area of study. The experts in the area of study helped in improving the instruments. The experts' feedback in form of recommendations to the researcher, were incorporated in the final instruments. Not only that the researcher conducted a pilot test of the instruments before using them in the study. This was done randomly to colleagues of the researcher. The purpose of piloting the instruments was to test the appropriateness of the items to the respondents in order to improve the instruments and enhance the validity of the instruments. The researcher made use of the supervising experts to ensure proper guidance was given on the piloting of the instruments. Denscombe (1998) comments that there is no research tool that is adequate in itself in collecting and validation of data. The study used more than one research instrument with expectation that one tool could complement the other.

3.8.8 Ethical Consideration

Ethical consideration is an import factor to observe for any researcher, Cohen et al., (2007). Ethical principles in conducting research include acquiring clearance and the informed consent of the respondents as well as maintaining confidentiality. The researcher obtained a research permit from the Open University of Tanzania. A verbal permission was also granted from the heads of schools to administer the questionnaire to the teachers and also to interview them. Prior to the data collection process respondents were informed about the purpose of the study and were ensured that confidentiality would be maintained for any inform they volunteered during data collection.

3.9   Chapter Summary

In this chapter the area of the study has been identified. The reasons for adopting descriptive survey research design have been discussed. The chapter outlines the procedures adopted for sample selection and research instruments used for the study. The instruments used were questionnaires and interviews. In addition, the chapter has discussed the validation of the instruments used as well as the data analysis approach. The next chapter gives a presentation of the data collected.

CHAPTER FOUR

4.0 DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter deals with the presentation and analysis of data for the study. Data was collected through the use of distributed Questionnaires and Interviews from 70 teacher's respondents out of the 100 targeted respondents from the 8 secondary schools in Ilala District. This gave a response rate of 70%. The findings of the study are presented as per objectives of the study in the following sections. The data from the questionnaires were statistically analysed by using a computer programme known as SPSS version 20. The findings are discussed according to the sections of the questionnaire.

4.2 General Information on the Respondents

This section, presents information on respondents' gender, years of service as a teacher and highest level of education. The respondents were first asked to indicate their gender. From the response, 64% of the respondents are female while 36% are male.

Table 4.1: General Information on the Respondents

Gender	Frequency	Percentage
Male	25	36%
Female	45	64%
Total	**70**	**100%**

Source: Field Data (2015)
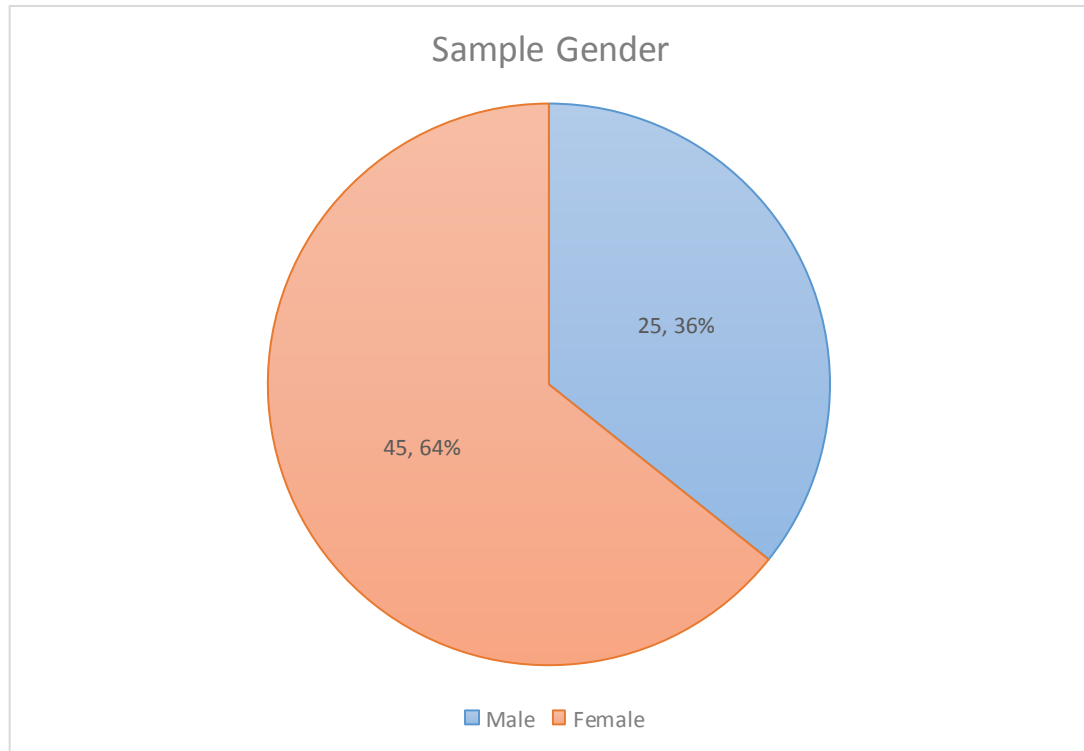
Figure 4.1: General Information on the Respondents

Source: Field Data (2015)

From the findings of the study, it is clear that most of the respondents interviewed were female teachers. The findings also showed that the information collected was not biased in terms of gender composition thus the data collected was perceived to reflect ideas from the mixed gender composition.

4.3 Age of the Teachers

To establish the ages of teachers, they were asked to indicate their ages. Their age distribution is represented in figure below,

Table 4.2: Age of the Teachers

Age	Frequency	Percentage%
30 years	28	40%
30-40 years	20	29%
40- 50 years	13	19%
Above 50	9	13%
Total	70	100%

Source: Field Data (2015)
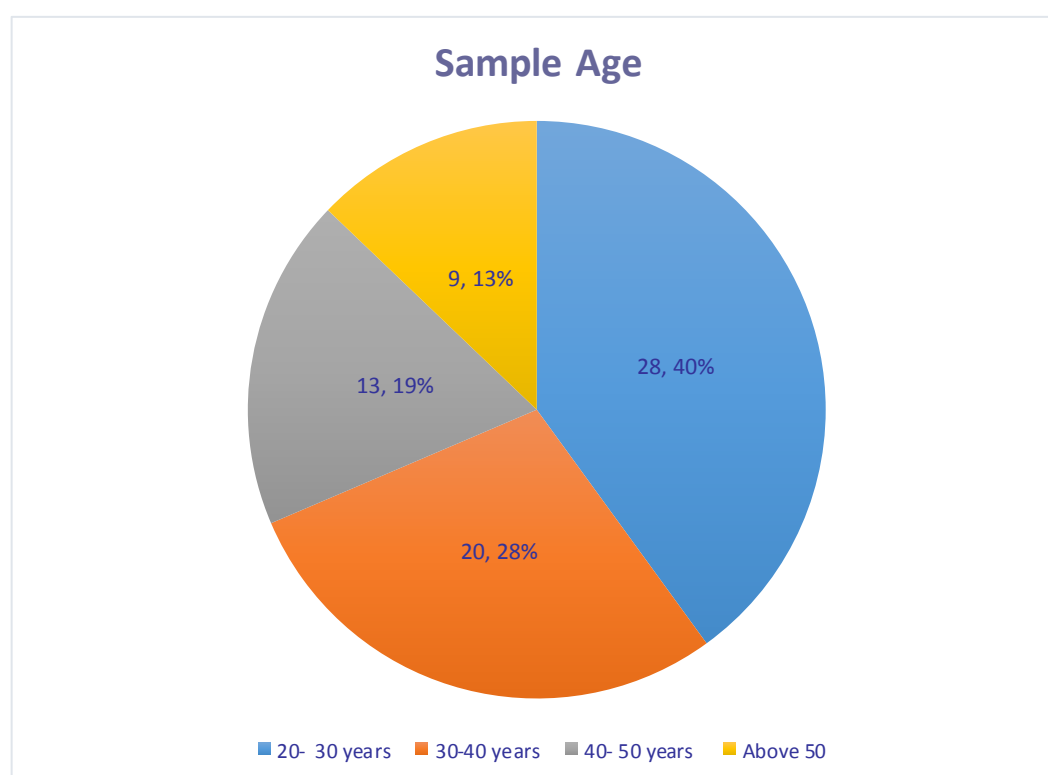
Figure 4.2: Age of Teachers

Source: Field Data (2015)

The results in figure above indicate that 40% of the teachers were both in the age brackets below 30 years and age brackets 20-30 years respectively. 29% were in the age brackets 31- 40 years and 41-50 years respectively. Only 13% of the respondents were in the age bracket above 50 years. Majority of the teachers were therefore below 40 years.

4.4   Respondents Teaching Experience

In finding out the teaching experience of the teachers, the researcher grouped the respondents in groups of five years serving as teachers. The results are 10% have served for a period of more than 10 years, 50% have served between 5-10 years, 36% of the sample served for a period of less than 5 years. The results were tabulated below.

Table 4.3: Respondents Teaching Experience

Experience in Years	Frequency	Percentage%
1- 5 years	25	36%
5-10 years	35	50%
Above 10 years	10	14%
Total	70	100%

Source: Field Data (2015)
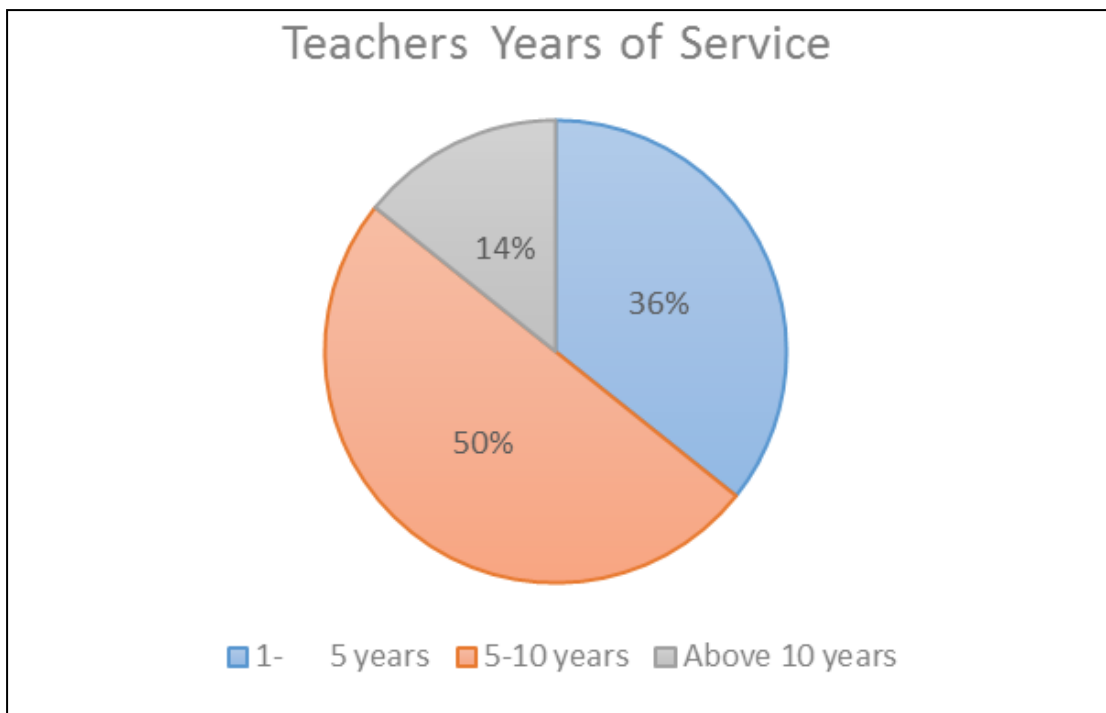
Figure 4.3: Respondents Teaching Experience

Source: Field Data (2015)

From the findings of the study, it can be said that most of the teachers had taught for at least a year hence they were perceived to be well informed about the use ICT in teaching.

According to Dudzinski et al., (2000), teaching experience is developed over time and that teachers who have taught for a long duration are knowledgeable on teaching issues. This is because they are perceived to have the ability to relate prior knowledge to new experiences. Focusing on teacher experience, Clotfelter et al., (2006), found that teachers with more experience are more effective than those with less experience. The researcher therefore considered the information given by the respondent to be reliable because most of the teachers had taught for a long period of time and therefore were considered to have information on their experiences on the use of ICT to facilitate teaching and learning in schools.

4.5   Respondents Qualification

Teachers were further asked to indicate their highest level of education. The study found out that 19% of the respondents are postgraduates, 54% of the respondents had bachelor's degree and it was also found that 27% of the respondents are diploma qualifications holders.

Table 4.4: Respondents Qualification

Teachers Qualification	Frequency	Percentage%
Postgraduate	13	19%
First Degree	38	54%
Diploma	19	27%
Total	70	100%

Source: Field Data (2015)
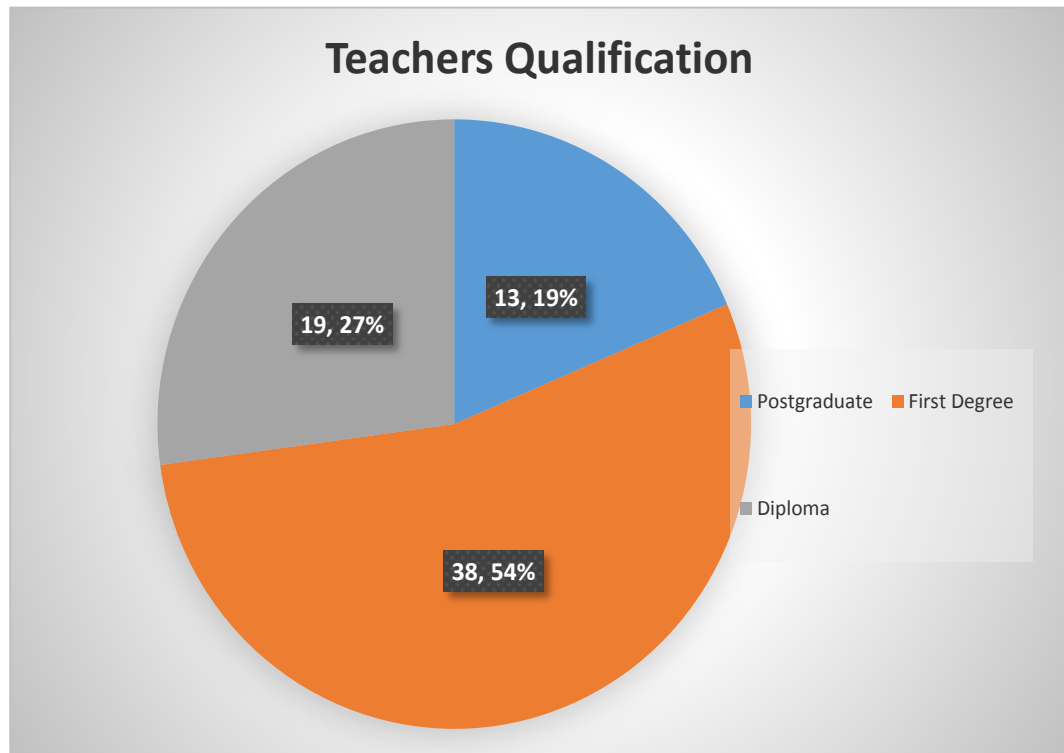
Figure 4.4: Respondents Qualification

Source: Field Data (2015)

From the findings of the study, it can be concluded that majority of the respondents are degree graduates and therefore have qualified to teach secondary schools.

4.6 Teachers Possess Electronic Gadgets-Computers, Tablets, Smartphones etc

On finding out if teachers own computers or other electronic gadgets for their own uses, the study found that 45 teachers in a group of 70 own a computer or an electronic gadget be it a laptop or a desktop and 25 don't own any of the mentioned gadgets.

Table 4.5: Teachers Possess Electronic Gadgets-Computers, Tablets, Smartphones etc

Computer possession	Frequency	Percentage%
Own a Computer	45	64%
Don't own a computer	25	36%
Total	70	100%

Source: Field data (2015)
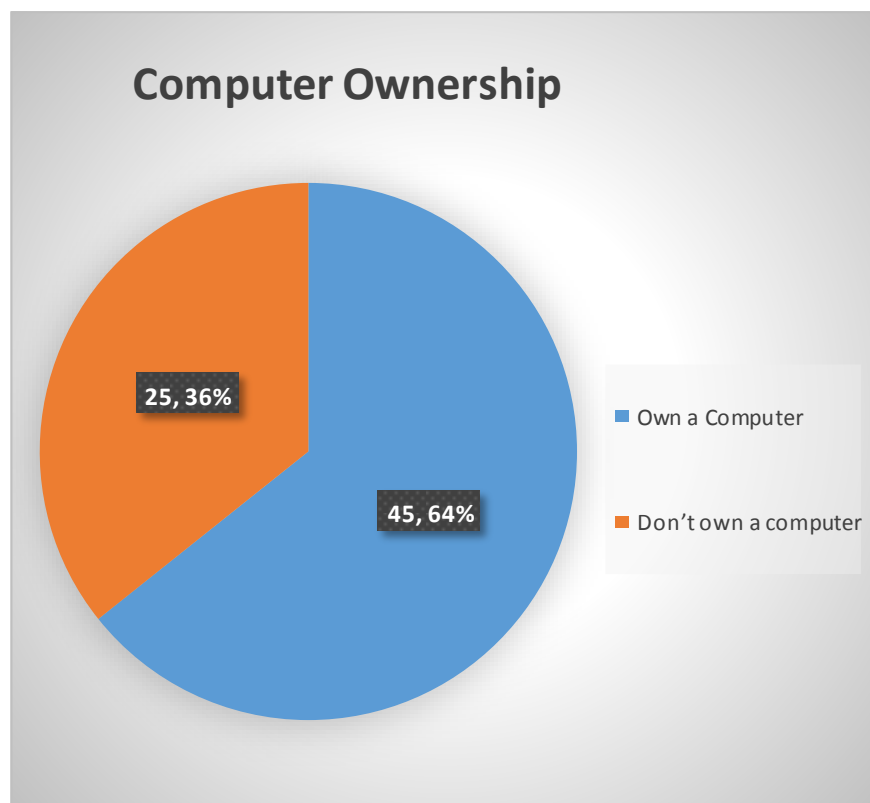
Figure 4.5: Teachers Possess Electronic Gadgets-Computers, Tablets, Smartphones etc

Source: Field data (2015)

From the findings of the study 64% percent of the sample population own a computer, it can be concluded that most of the teachers know how to use at least one of the gadgets.

4.7   Level of ICT use

In finding out the level of technology expertise of the teachers, it was found that 30 out of 70 respondents i.e. 43% of the sample population were very comfortable working with ICT devices i.e. computer, tablets and smartphones, 27 out of 70 respondents i.e. 39% of the sample population were fairly comfortable using ICT devices and 13 out of 70 respondents i.e. 19% of the population were uncomfortable using ICT devices.

Table 4.6: Level of ICT use

Comfortability on Using ICT devices	Frequency	Percentage%
Very comfortable	30	43%
Fairly comfortable	27	38%
Uncomfortable	13	19%
Total	70	100%

Source: Field data (2015)
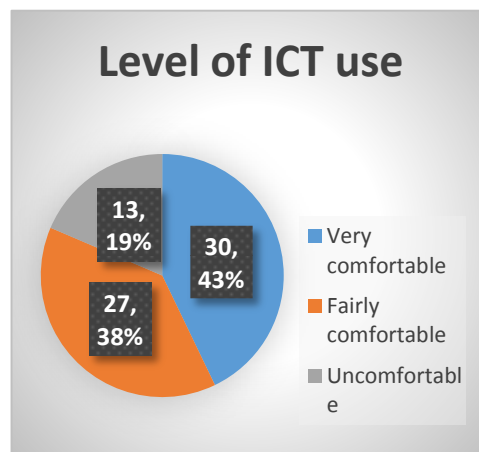
Figure 4.6: Level of ICT use

Source: Field Data (2015)

From the findings it shows that 82% of the population are comfortable using ICT devices and are aware of the use of ICT to facilitate teaching.

4.8   On using ICT in teaching

In finding out if teachers do use ICT in other activities apart from teaching, the study found that 14 out of 70 respondents frequently use ICT in teaching, 26 out of 70 respondents occasionally use ICT in teaching and 30 out of 70 don't use ICT at all.

Table 4.7: On using ICT in teaching

Comfortability on Using ICT devices	Frequency	Percentage%
Use more often	14	20%
Use rarely	26	36%
Does not use at all	30	43%
Total	70	100%

Source: Field Data (2015)
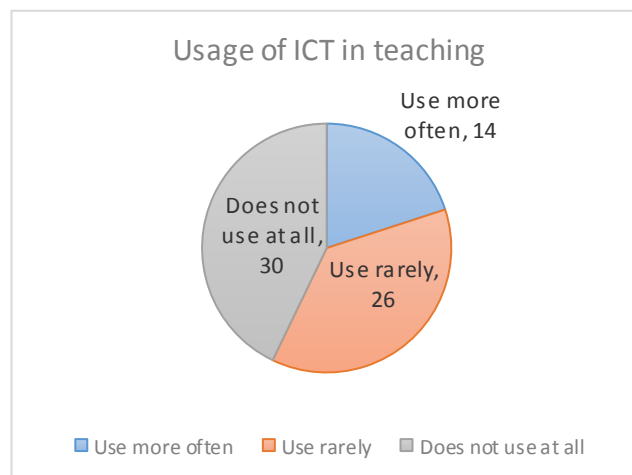
Figure 4.7: On Using ICT in Teaching

Source: Field Data (2015)

From the findings it shows that 40/70 i.e. 56% of the population use of ICT in teaching.

In finding out if schools have computer laboratory, the study found out that 50% of schools whose teachers were selected in the research have computer labs and 50% of the schools computer labs are connected to the internet.

4.9 Presentation of Quantitative Data

4.9.1 Benefits of Using ICT to Facilitate Teaching

The results on what are the benefits of using ICT in teaching are quantified in tables as shown

4.9.2 On ICT Facilitate and Make Teaching Process Easier

Table 4.8: ICT Make Teaching Process Easier

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	27	39.7	40	40
Agree	29	42.6	43	83
Disagree	9	13.2	13	96
Strongly Disagree	5	4.4	4	100
TOTAL	**70**	**99.9**	**100**	

Source: Field Data (2015)
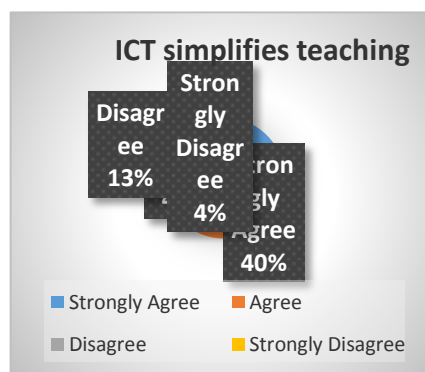
Figure 4.8: ICT Make Teaching Process Easier

Source: Field Data (2015)

According to Table 4.7, 83% of the respondents agreed that use of ICT simplifies teaching, 17% disagreed.

4.9.3 On ICT Access to Education Resources

Table 4.9: ICT Widens Access to Education Resources

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	35	51.5	52	52
Agree	27	39.7	40	92
Disagree	5	4.4	4	96
Strongly Disagree	3	4.4	4	100
TOTAL	**70**	**100**	**100**	

Source: Field Data (2015)
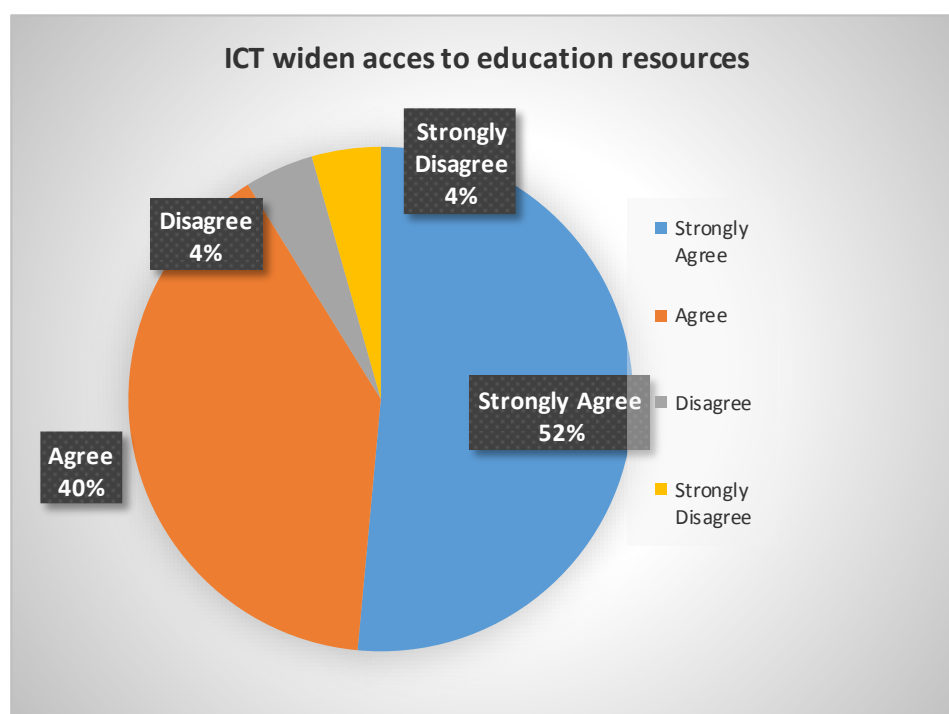
Figure 4.9: ICT Widens Access to Education Resources

Source: Field Data (2015)

From the results of table 4.8, 92% of the respondents agreed that ICT provide high access to education resources, 8% disagreed.

4.9.4 On ICT Increase Teachers' Interaction with Resources

Table 4.10: ICT Increase Teachers Interaction with Resources

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	30	44.1	44	44
Agree	35	51.5	52	96
Disagree	3	2.9	3	99
Strongly Disagree	2	1.4	1	100
TOTAL	**70**	**99.9**	**100**	

Source: Field Data (2015)
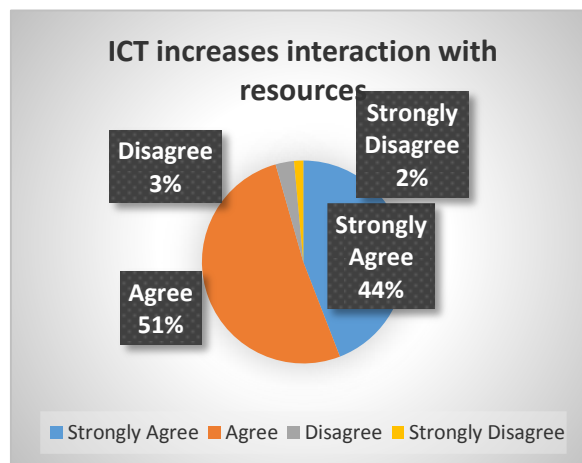
Figure 4.10: ICT Increase Teachers Interaction with Resources

Source: Field Data (2015)

From the results of table 4.9, 95% of the respondents agreed that ICT increases teacher's interaction with resources, 4% disagreed.

Barriers hindering the use of ICT to facilitate teaching process in secondary schools.

4.9.5 On Availability and Access to ICT Facilities and Resources

Table 4.11: Availability and Access to ICT Facilities and Resources

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	45	66.2	66	66
Agree	25	33.8	34	34
Disagree	0	0	0	0
Strongly Disagree		0	0	100
TOTAL	70	100	100	

Source: Field Data (2015)
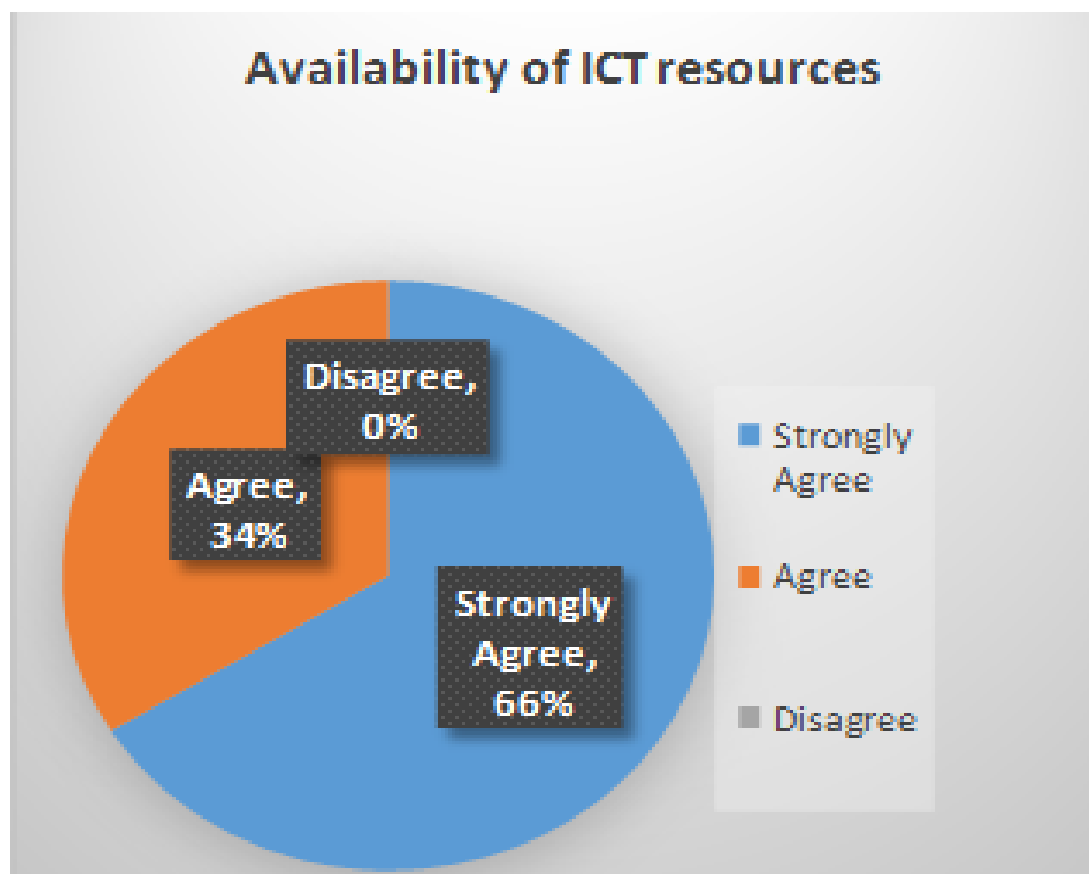
Figure 4.11: **Availability and Access to ICT Facilities and Resources**

Source: Field Data (2015)

From the results of table 4.10, 100% of the respondents agreed unavailability and inaccessibility of ICT facilities and resources hinders the use of ICT to facilitate teaching process in secondary schools, 0% disagreed.

4.9.6 On teachers attitude towards ICT.

Table 4.12: Teachers Attitude towards ICT

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	30	44.1	44	44
Agree	30	44.1	44	88
Disagree	5	5.9	6	96
Strongly Disagree	5	5.9	6	100
TOTAL	**70**	**100**	**100**	
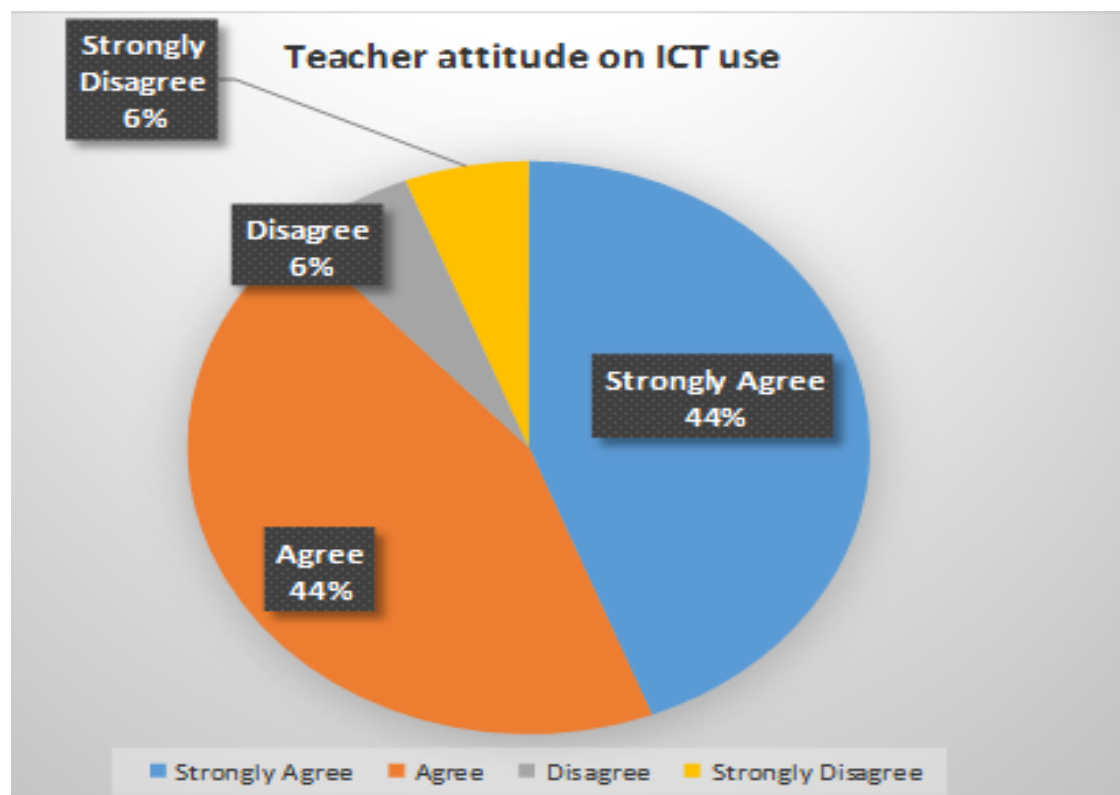
Figure 4.12: Teachers Attitude towards ICT

Source: Field Data (2015)

From the results of table 4.11, 88% of the respondents agreed that teachers attitude towards the ICT as a barrier that hinders them to use ICT to facilitate teaching process, 12% disagreed.

4.9.7 On Teachers ICT Competence Teaching Process

Table 4.13: Teachers ICT Competence

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	28	41.2	41	44
Agree	30	44.1	44	85
Disagree	7	7.4	7	92
Strongly Disagree	5	7.4	7	99
TOTAL	**70**	**100**	**99**	

Source: Field Data (2015)
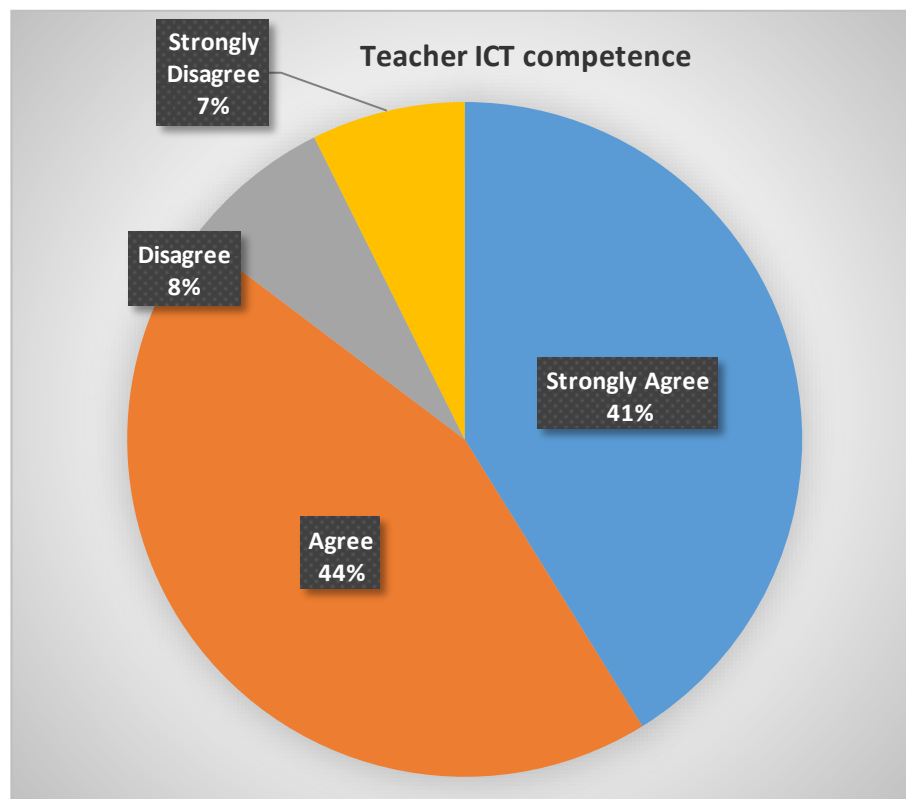
Figure 4.13: Teachers ICT Competence

Source: Field Data (2015)

From the results of table 4.12, 85% of the respondents agreed that teachers ICT competence hinders them to use ICT to facilitate teaching, 15% disagreed.

4.9.8 On Lack of Technical Support.

Table 4.14: Lack of Technical Support Hinders the Use of ICT in Teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	29	42.6	43	43
Agree	25	36.8	37	80
Disagree	9	11.8	12	92
Strongly Disagree	7	8.8	8	100
TOTAL	**70**	**100**	**100**	
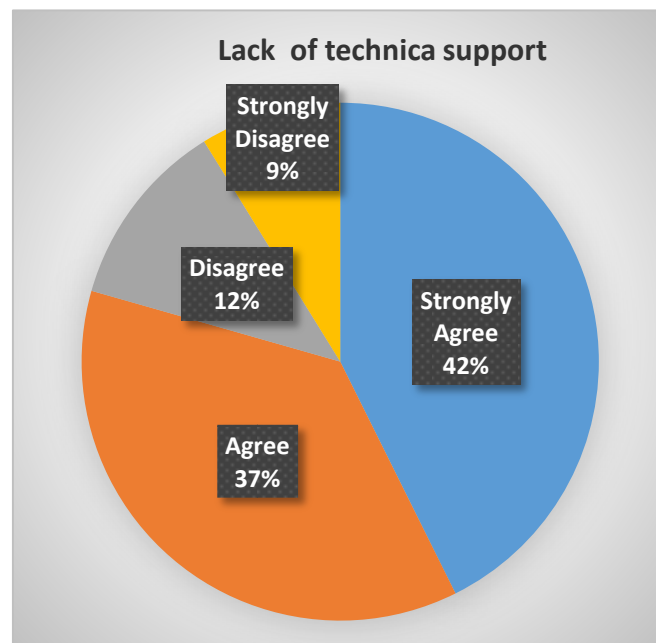
Figure 4.14: Lack of Technical Support Hinders the Use of ICT in Teaching

Source: Field Data (2015)

From the results of table 4.17, 80% of the respondents agreed that lack of technical support hinders them to use ICT in teaching, 20% of the population disagreed.

4.9.9 On insufficient ICT Resources

Table 4.15: Insufficient ICT Resources Hinders Using ICT in Teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	23	33.8	34	34
Agree	37	54.4	54	88
Disagree	3	4.5	5	93
Strongly Disagree	7	7.4	7	100
TOTAL	**70**	**100**	**100**	

Source: Field Data (2015)
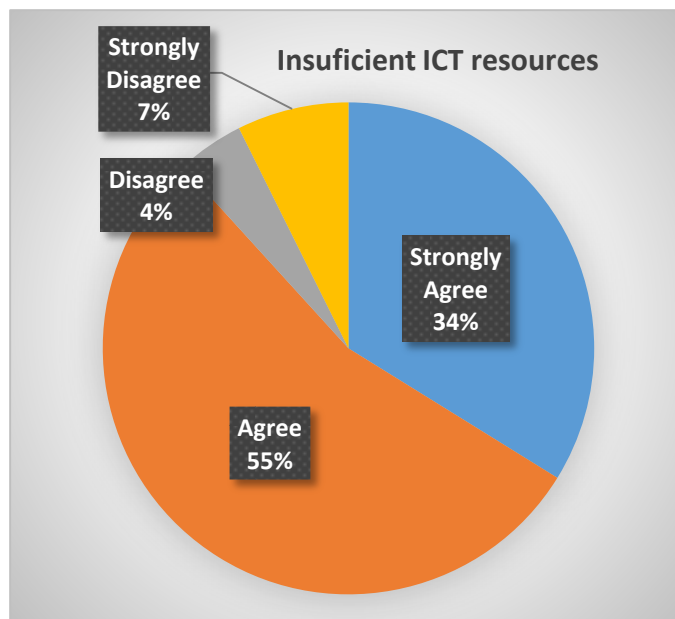
Figure 4.15: Insufficient ICT Resources Hinders Using ICT in Teaching

Source: Field Data (2015)

From the results of table 4.18, 89% of the respondents agreed there are insufficient

ICT in their schools, 12% disagreed.

4.9.10 Lack of ICT Training

Table 4.16: Lack of ICT Training On How to Use In Teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	28	41.1	41	43
Agree	30	44.1	44	88
Disagree	6	8.8	9	94
Strongly Disagree	6	5.6	6	100
TOTAL	**70**	**100**	**100**	

Source: Field Data (2015)
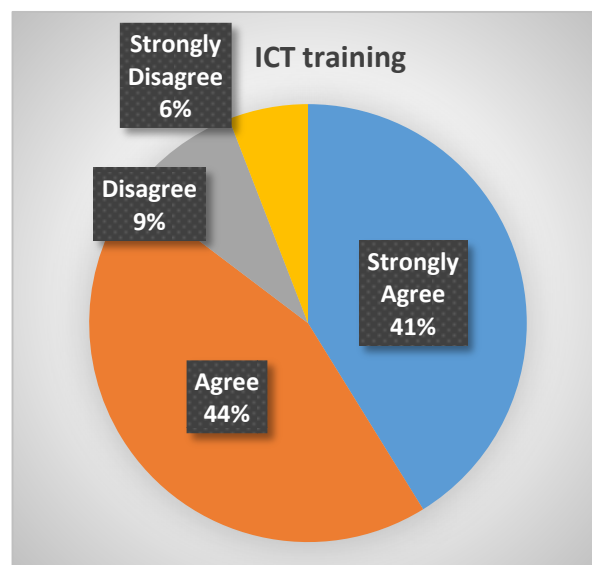
Figure 4.16: Lack of ICT Training On How to Use In Teaching

Source: Field Data (2015)

From the results of table 4.19, 85% of the respondents agreed they are not trained to use ICT in teaching, 15% said they are trained.

4.10 Presentation of Open Ended Interview Questionnaires

The data obtained through face to face interview with respondents are presented according to the order of the objective of the study.

Question 1: what are the barriers that hinder the use of ICTs to facilitate teaching process in Ilala District secondary schools?

Majority of the respondents responded verbally by listing the common barriers that hinders the use of ICT to facilitate teaching and learning here under the researchers have identified the most listed barriers which includes, inaccessibility and unavailability of ICTs resources, inadequacy of ICTs resources in schools, lack of training on the use of ICT hinders its effective use in teaching, teachers have negative attitude towards the use of ICTs in teaching, the unavailability of technical support staff. When asked to give their views on the barriers of integrating ICT in facilitating teaching here are their views:

> *"Lack of ICT competence and knowledge is my problem", I have no enough skills to incorporate ICT tools in my lesson"*

A female respondent said that:

> *"The use of ICT in teaching and learning is essential to both the teacher and the learner. As a teacher I can use website such as You Tube and Google to search for relevant materials for my lesson and use them to teach the students, everyone would like to integrated ICT in his/her lesson, the main challenge we face at our school is that we have only one classroom with computers and a media room that is having a smart board and computer facility and the rooms are always booked, if all classes could be facilitated with at least a projector we could use our own laptops"*

Another respondent said that:

> *"Integrating ICT in my lesson becomes hard because I am not knowledgeable on working with a computer I find it hard to use it in class. In occasions with the help of my students who are knowledgeable with ICT we have used videos and simulations from www.yteach.com and www.youtube.com to explain concepts like alimentary canal, respiratory system etc."*

Other respondent from a government school commenting on the barrier of ICT he said

> *"I think there should be a program of providing basic ICT education to teachers not only on how to use them but also on how to integrate ICT in their teaching subjects. I really need to know how to use ICT to teach mathematics and I believe if I have proper training on how to use internet and computer I will be able to search relevant materials for my students"*

Responding to the interview question another teacher alleged:

> *"Not all teachers are capable of using ICT some of us don't know how to use one and they are not available at our working environment, I have never thought that ICT can be used in classrooms also"*

A comment from another teacher:

> *"I would love every teacher at my school to at least have a personal computer that is connected to the internet so they can use for lesson preparation and teaching, but we are a government school we depend everything from the Ministry of Education budget, teachers as educators are supposed to be ahead with the changing technology and adopt innovative teaching through using ICT in classrooms"*

Responding to the interview a female language teacher in one of the private owned schools said:-

> *" I feel like I am too old to learn to use a computer and not to mention integrating ICT in my classes, our generation is over but I advise junior*

teachers to include ICTs knowledge into their teaching, the world is changing fast and I believe technology enhanced teaching caters well in the world we are into, occasionally I have been using CDs and Audio Books in reading English I have seen kids more involved and proactive than when I use the traditional talk chalk methods"

Another teacher described:-

"I am too old to adapt to the new teaching styles and I am happy with my own teaching period", "I believe in traditional method which let the students touch, feel and learn. I could make interactive lesson without using the ICT tools"

Question 2: what are the benefits of using ICTs to facilitate teaching process in Ilala District secondary school?

In the interviews held between the respondents and the interviewer, majority of respondents revealed that most respondents replied this question by enlisting the possible benefits that ICTs has when it is used in classroom environment, the list included the following observations identified as the benefits of using ICTs in classroom:- facilitates and makes the teaching process easier, ICTs widens access to education resources, ICTs arouses learners enthusiasm towards the subject matter, through use of ICTs learning becomes autonomous, using ICT enhances students understanding of the subject matter, through use of ICTs in classroom students can work collaboratively, the use of ICT in classroom makes learners more engaged and attached to the lesson,

A comment from a physics teacher is presented:

"ICT has the ability to make learning to occur anytime at any place, through the use of ICT access to education has been widened and limitless, students can learn and get access to educational resources anywhere and at any time, there are varieties of educational materials

on the internet such as virtual classes, virtual forums, audio books, electronic books, electronic libraries that are accessible 24 hours everywhere ICT have made education resources to easily be available, easily accessible, you just need a computer connected to the internet, I use ICT occasionally when I face difficulties explaining a concept I would Google search the concept such as magnetic effects of electric current, laws of magnetism, electric bell there are a list of short videos I watch and choose one that is suitable for my class and I will use it to teach. I find it easier and entertaining to use ICT in teaching physics"

Another respondent had the following to say on the benefit of using ICT to facilitate

teaching:

"Through the use of ICT learners take control of the lesson and a teacher is there as a facilitator, use of ICT in classrooms is more of learner centric type of teaching"

Moreover, another respondent said this with reference to the benefits of using ICT to

facilitate teaching and learning in secondary schools:

"The use of ICT to facilitate teaching has great potential to enhance student achievement and teacher learning. There are a bunch of ICT tools which when well used in classroom they can turn a class into a place where students want to be, mobile phones, tablets and mobile applications such as Edmodo, Mathmateer, Myhomework Student, English Grammar book, Math trick etc., which are available in Google Play for free for android users, they can be downloaded and installed by the students in their phones and use while away from school"

Another respondent said:

"New technologies can be used to enable students to collect information and interact with resources, such as images and videos, and to encourage communication and collaboration."

Another respondent sharing her views on the benefits of using ICT in to facilitate

teaching process she said:

"By using ICT in a classroom learning becomes autonomous and interesting where learners are fully engaged within the lesson, with ICT

learning of difficult concepts becomes simplified and interesting imagine subjects like biology, physics and chemistry a teacher may decide to use a simulation software or short video clips to demonstrate a difficult concept to students, through the help of internet I have been able to research on different topics that I teach such production, factors of production, demand and supply all these materials are available online for free and they simplified my work and arouses students morale and interest towards topic of discussion. ICT also can be used for preparation and planning, keeping students' records and attendance monitoring. ICT is a potential tool for modern teaching and learning though it seems to be a service of few teachers."

Question 3: What are the factors determining the use of ICT to facilitate teaching in secondary school?

In an interview conducted by the researcher respondents gave their views on what are the factors determining the use of ICT to facilitate teaching in secondary school here under are their views,

In responding to the interview a respondent said:

"I don't use ICT to facilitate teaching and learning because I don't know how to use ICT the knowledge I have regarding using ICT is very basic to the extent that I lack confidence to use it in front of the students, but I do believe that through ICT my job as a teacher will be simplified and entertaining to my class, I think the school owners should organize seminars, workshops and short courses on how to integrate ICT in teaching processes, it is very important to introduce teachers and other education stakeholders to seminars and workshops on technology based teaching and learning"

Moreover the following is a comment from another respondent:

"One of the barriers that hinder us to use ICT in teaching is lack of access to ICT facilities and infrastructures, most of schools especially government school either have inadequate ICT infrastructures or don't have at all, Ministry of education should ensure that these infrastructures are available and train teachers to use them in classrooms.

A comment from a teacher:

> *"Not only computer and internet the school could purchase a TV set and a DVD player and Multimedia CDs which are recorded with different subject topics this can be used as supplementary materials for both teachers and students, CD's like world encyclopaedia can also be used in classrooms. "*

A response from a head of school

> *"Accessibility is one issue and usage is another issue, I think if there could be enough accessibility and awareness of the ICT infrastructures, teachers are ready to use ICT in their classes in our schools all teachers have laptops all classes are equipped with multipurpose whiteboard and some have Smartboards, most of teachers here use ICT and we have a policy of giving loans for purchasing laptops where a teacher pays the loan from minor deductions from their salaries."*

A response from a teacher

> *"Integrating ICT in teaching in government secondary schools is a myth most of the government schools they do not have ICT infrastructures at all, even if a teacher wants to use his/her own laptops there is no projectors, some classes have no powers I think the government should put more emphasis establishing ICT infrastructures in its schools,"*

Another teacher form said:

> *"Most of us learnt to use ICT especially computers by our own, we search on the internet for references that matches our lesson and correlate with our lessons, this consumes lots of times since I have to find free time to do so, I would advise provision of seminars and workshops on how to use ICT in classrooms"*

More suggestions from another respondent to the interview question on which way to improve use of ICT to facilitate teaching and learning;

A comment from a teacher:

> *"Teachers need to be introduced to ICT education earlier and the only time that the can get enough time to learn how to integrate ICT with*

their respective subjects is during their training course, my opinion is ICT integration in education should be taught in teachers training colleges"

The respondent continued

"The curriculum is silent about the use of ICT I think curriculum developers should revisit the curriculum and introduce usage of ICT in teaching, we are in the 21st century and to achieve the Millennium Development Goals I think use of ICT in education should be a number one priority. Allocate more funds on ICT projects, train teachers in uses and integration of ICT in teaching and learning and provide in-service trainings, seminars and workshops on the use of ICT in education. "

One heads of school gave the following comments regarding attitudes towards use of

ICT to facilitate teaching and learning:

"Teachers in this school like using ICT in implementing curriculum subjects. Some even use their own money to buy CDs with relevant information in their subjects and bring them to school with an aim of using them to teach students."

4.11 Chapter Summary

This chapter deals with the presentation and analysis of data for the study. The findings of the study are presented as per objectives of the study in the following sections. The findings are presented according to the sections of the questionnaire.

CHAPTER FIVE

5.0 DISCUSSION OF THE FINDING

5.1 Introduction

This chapter presents discussion of the findings of the study. The research questions lead the discussion to be organized under the following broad themes:

i) The barriers hindering the use of ICT to facilitate teaching in secondary schools.

ii) The benefits of using ICT to facilitate teaching in secondary schools.

iii) The factors determining the use of ICT to facilitate teaching in secondary schools.

5.2 The Barriers That Hinder the Use of ICT to Facilitate Teaching and Learning in Secondary Schools in Ilala District

This section discusses the barriers that have been identified as the barrier to the use of ICT in teaching processes in secondary schools.

5.2.1 Teacher Competence and Confidence

In the study 85% of the respondents agreed that lack of training on the use of ICT in teaching is a barrier in integrating ICT in teaching. This study matches with the study done by Newhouse (2002), which reveals that many teachers lack the knowledge and skills to use computers and are not enthusiastic about the changes and integration of supplementary learning associated with bringing computers into their teaching practices. Another study by Pelgrum (2001), found that teachers' lack of

technological competence is a main barrier to their acceptance and adoption of ICT. Mukama & Anderson (2008) in their study reports that, using ICT to train teachers is most necessary as it leads teachers to change attitudes, be more technologically skilled, motivated to use the same technologies after training and enhance collaboration. The study concludes little or lack of professional training on how to use ICT in teaching is a major barrier, for successful integration of ICT in teaching an emphasis should be put in providing pedagogical training on using ICT as across the curriculum is important. Therefore, teachers need knowledge of appropriate ICT integration approaches and ICT skills to successfully incorporate the ICT tools into their lessons. Training teachers on ICT related skills within the context of classroom objectives and activities ensures development of skills in integrated use of ICT in teaching.

5.2.2 Teachers Attitude towards the Use of ICT to Facilitate Teaching

A lot of research on the attitude of both students and teachers towards the use of ICT in teaching and learning had been done with outcome being either positive or negative. For instance BECTA (2004) reported that negative attitude was a barrier towards integration of ICT in teaching and learning while, Rhoda and Gerald (2000) found that positive attitudes towards ICT use are widely recognized as a necessary condition for effective ICT use in teaching and learning. Similarly, Kubiatko et al., (2009) in their study identified that attitude towards ICT determines its adoption in teaching. According to Jones (2001), the attitudes of teachers towards technology greatly influence their adoption and integration of computers into their teaching. The study shows that teachers prefer to use the traditional method for teaching in their

classroom because of their lack of motivation, acceptance and readiness towards the ICT integration and adoption in teaching.

From the results, this study found that 88% of the respondents agreed that their negative attitude towards the use of ICT to facilitate teaching hinders them to use ICT in classroom teaching. According to Gomes (2005), much research into the barriers to the integration of ICTs into education found that teacher attitudes and an inherent resistance to change was a significant barrier. To successfully initiate and implement educational technology in schools depends strongly on the teachers' support and attitudes. It is believed that if teachers perceived technology programmes as neither fulfilling their needs nor their students' needs, it is likely that they will not integrate the technology into their teaching. In the study by Selewyn (1999), integration of ICT in education environment depends, to a great extent, on teachers and student attitude towards their use. If teachers' attitudes are positive toward the use of educational technology then they can easily provide useful insight about the adoption and integration of ICTs into teaching processes.

From interviews some teachers who resist to use ICT in teaching believe that ICT have no benefits for themselves and their learners they give excuses such as they feel shy to learn use ICT, they are too old to learn how to use ICT and some don't see the logic of learning while they know they won't use because facilities are not available. An interview results with teachers both who are computer literate and other with limited computer skills revealed that teachers are more sensitive about their ability to use computer and intention to use computer than their perceptions of the usefulness

of computer. It therefore appears that teachers' attitude may influence adoption of ICT in teaching process. The study reveals that positive attitude towards computers, computer experience, and personal entrepreneurship of the teacher educator have a direct positive influence on the innovative use of ICT by the teacher.

The study is in line with another study by Schiller (2003) which reveals that personal characteristics such as educational level, age, gender, educational experience, and experience with the computer for educational purpose and attitude towards computers can influence the adoption of a technology in teaching.

It is undeniable that teacher attitude is one of the most critical factors that enhance or inhibit the integration of ICT into classroom instruction. Teacher attitude and competence ensure ICT implementation and guarantee further ICT innovation. The attitudes of teachers towards technology greatly influence their adoption and integration ICT into their teaching process, therefore an understanding of personal characteristics that influence teachers' adoption and integration of ICT into teaching is relevant. To successfully integrate ICT in teaching processes teachers are argued to change their attitude towards ICT especially to develop a positive attitude. It is advisable to adopt more appropriate measures to help both teachers and students further improve on their attitude towards ICT use in teaching and learning.

5.2.3 Limited Access to ICT Facilities

The study results show that 100% of the respondents agreed that unavailability and inaccessibility of ICT facilities and resources hinders the use of ICT to facilitate

teaching. The study results indicate that accessibility and availability of ICT resources plays a huge role in determining the use ICT to facilitate teaching.

To supplement these results an interview was conducted to the selected sample and the respondents gave their views regarding the barriers that hinders the use of ICT to facilitate teaching and learning most respondents argued that they do not use ICT because they do not have access to ICT resources and some schools don't have facilities such as power, computer laboratory, internet access, and electronic projectors. The study by Eze and Olusola (2013) revealed that in Botswana, lack of electricity in rural schools and high cost of computers is a stumbling block to the integration of ICT in teaching, internet is impossible where there are no telephones and electricity.

Effective application of ICT into classroom heavily relies on the availability of technological resources, qualified and confident teacher and other internal and external factors that directly or indirectly affect teachers' welfare and morale. The study further show that teachers have a positive perception on the use of ICT, but the availability and accessibility of ICT resources such as hardware, software and communication infrastructure are limited. If there are some ICT resources in a school, they are only limited to office use. Integrating ICT to teaching learning is not an option to the government and school owners, efforts should be made to ensure ICT infrastructures are available in all schools and are used as we a preparing children to live in a 21st century.

5.2.4 Lack of Technical Support

The study shows that 80% of the respondents indicated that they lack technical support on ICT issues hence they are intimidated to use ICT in teaching. The study by Pelgrum (2001) found that in the view of primary and, secondary teachers, one of the top barriers to ICT use in education was lack of technical assistance. Lewis (2003) asserted that without both good technical support in the classroom and whole school resources, teachers cannot be expected to overcome the barriers preventing them from using ICT. The findings show that one of the challenges facing the use of ICT in teaching and learning is the availability of support staff.

The interview conducted revealed that breakdown of a computer causes interruptions and if there is lack of technical assistance, then it is likely that the regular repairs of the computer will not be carried out resulting in teachers not using computers in teaching. The effect is that teachers will be discouraged from using computers because of fear of equipment failure since no one would give them technical support in case there is technical problem. BECTA (2004) agrees that if there is a lack of technical support available in a school, then it is likely that technical maintenance will not be carried out regularly, resulting in a higher risk of technical breakdowns.

Therefore, if there is no technical support for teachers, they become frustrated resulting in their unwillingness to use ICT, ICT support in schools influence teachers to apply ICTs in classrooms without wasting time troubleshooting hardware and software problems.

5.2.5 Teaching Experience

The study result shows that there is a digital divide (generation gap) between the teachers. Youngers teachers have emerged to be positive about using ICT to facilitate teaching than older teachers, the study indicate that for most of younger teacher apart from owning computers and tablets or smartphones they occasionally engage in using software and mobile application and educational website in teaching as compared to senior teachers. The study reveals that senior teachers indicated that their age and teaching experiences were the barriers to adapt to the ICT integration into their lessons. The older teachers with more experience in teaching did not prefer to use ICT tools in their classes.

5.2.6 Professional Development

Insufficient amount of in-service training programs for teachers is another barrier that hinders the use of ICT in teaching, during the interview session respondents reported that there were no enough in-service training opportunities for teachers in the use of ICTs in teaching. A study by Newhouse (2002) states that "teachers need to not only be ICT literate; but they also need to develop skills in integrating ICT use into their teaching". According to Newhouse (2002), teachers need training in technology education (focusing on the study of technologies themselves) and educational technology (support for teaching in the classroom).

It can be concluded that there are barriers which hinders the use of ICT to facilitate teaching and learning which are teacher's attitudes toward use of ICT, lack of teacher training on the use of ICT to facilitate teaching and learning, unavailability of

technical support staff, availability and accessibility of ICTs resources and facilities. These factors have been mentioned repeatedly as the barriers to the use of ICT to facilitate teaching process.

5.3 The Benefits of Using ICT to Facilitate Teaching and Learning In Secondary Schools

This section discusses the benefits of the use of ICTs in teaching processes in secondary schools.

5.3.1 ICT Facilitate and Make Teaching Process Easier

From the finding the study shows that the use of ICT in teaching makes the teaching easier and hence teaching is simplified. The study agrees with study by Bransford et al., (2000), several studies have reviewed the literature on ICT and learning and have concluded that ICT has great potential to enhance teacher performance. Another study by Dawes (2001) views that, new technologies have the potential to support education across the curriculum and provide opportunities for effective communication between teachers and students in ways that have not been possible before.

Using ICT in teaching is also perceived as having the advantage of heightening motivation for the learner; helping recall previous learning; providing new instructional stimuli; activating the learner's response; providing systematic and steady feedback; facilitating appropriate practice; sequencing learning appropriately; and providing a viable source of information for enhanced learning. Consider

teaching respiratory system by using you tube with moving picture and traditional explanation usually the teacher does in the classroom http://www.youtube.com/ watch?v= hc1YtXc_84A a teacher's job is simplified, and the role becomes that of a facilitator. Research and active projects, such as those run by EdQual, a Research Consortium of educational institutions in the UK and Africa (Ghana, Rwanda, South Africa, Tanzania) on Educational Quality, typically indicate two main reasons why teachers use ICT: teachers feel that their own use of computers benefits their learners, teachers feel learners benefit from using computers themselves, they gain confidence, self-esteem and renewed motivation.

5.3.2 Delivery of Educational Resources

ICT has increased the flexibility of delivery of education so that learners can access knowledge anytime and from anywhere. ICT has improved the delivery of education and enable wider access to the same. In addition, it has increased flexibility so that learners can access the education regardless of time and geographical barriers. A study by Gillespie (2006), revealed that new technologies can be used to enable students to collect information and interact with resources, such as images and videos, and to encourage communication and collaboration among students.

Through ICT the delivery of education resources can be in the form of computer tutorials, simulation software, digital media such as CDs, DVDs and blue ray, video and audio cassettes, television and radio programmes etc. These electronic media can simplify concepts and enable the students to grasp the concepts in a shorter time than it could have been explained by the teacher.

5.3.3 ICT Provide Access to Education

Another benefit using ICT in teaching, teachers have wide access to education resources. Teachers and learners no longer have to rely solely on printed books and other materials in physical media housed in libraries for their educational needs, with the Internet and the World Wide Web, a wealth of learning materials in almost every subject and in a variety of media can now be accessed from anywhere at any time of the day and by an unlimited number of people.

ICT are potentially powerful tool for extending educational opportunities, through their ability to transcend time and space, online educational materials, for example, may be accessed 24 hours a day, 7 days a week, in certain types of ICT, such as teleconferencing technologies, enable instruction to be received simultaneously by multiple, geographically dispersed learners.

5.3.4 ICT Provides Potential to Innovate

The findings show that majority of the respondents who are teachers agreed that ICT when integrated in teaching it provides potential to innovate. Underwood (2006) report provides an evidence that many teachers use ICT to support innovative teaching, by stating that new technologies that provides a good fit with existing practices, such as interactive whiteboards, are first to be embedded, but others like video conferencing, digital video and virtual learning environments are now being incorporated. Therefore, ICT can improve teaching by enhancing an already practiced knowledge and introducing new ways of teaching and learning.

Punie et al., (2006), states by using ICT in teaching flexibility, personalisation and different learning styles can be combined; and learning can be authentic, motivational and conceived as a social process enabling peer-to-peer informal interactions that lead them to learn from each other. Craft (2005) argues digital technologies have great potential to enable creative processes. Loveless (2007), holds that creative learning activities need meaningful contexts and ICT can offer tools for creating such contexts. These tools can represent information in a variety of modes that enable learners to make changes, try out ideas and approaches to problem solving.

5.4   The Factors Determining the Use of ICT to Facilitate Teaching In Secondary School

This section discusses the factors that influence the use of ICT in teaching in secondary schools.

5.4.1 Positive Attitude towards ICT and ICT Self-Efficacy

The findings of this study indicated that the teachers' attitudes levels towards the use of ICT had a direct relation with the use of ICT in teaching. Results of two similar studies done by Albirini (2004) and Isleem (2003) indicate that there is a significant relationship between users' attitudes towards ICT and the actual level of ICT use in teaching. This indicates that if teachers hold positive attitudes towards the use of ICT, they are likely to effectively use of ICT in teaching. Jones (2004), teachers feel reluctant to use computer if they lack confidence, Balanskat et al., (2007) stated that fear of failure and lack of ICT knowledge have been cited as some of the reasons for

teachers' lack of confidence for adopting and integrating ICT into their teaching. Positive attitudes often encourage less technologically capable teachers to learn the skills necessary for the implementation of technology-based activities in the classroom. Therefore, if teachers want to successfully use technology in their classes, they need to possess positive attitude to use technology. Such attitude is developed when teachers are sufficiently comfortable with technology and are knowledgeable on its use.

5.4.2 Competence in ICT Use

The study points out that respondents who had received some form of computer training displayed more use of ICT in teaching various lessons than those who did not receive any training. Becker et al., (1999) stated that there is a positive relationship between ICT training and teachers' attitudes. Training can significantly influence the ways in which a teacher includes technology tools in the classroom. The lack of computer training could lead to technophobia that is likely to limit the use of ICT in teaching. This study aligns with a study by Dogan (2010) which points out that, teacher training in ICT is vital for future conception and uses of computers for teaching process. However, for proper ICT integration in education, the quality of training needs to be taken into account. This finding of the study indicates that lack of adequate training in technology use and experience is one of the main reasons why teachers do not use technology in their teaching.

Therefore, training teachers and providing them with the appropriate knowledge and skills facilitates the integration of ICTs in teaching.

5.4.3 Professional Development

The term professional development may be used in reference to a wide variety of specialized training, formal education, or advanced professional learning intended to teachers, improve their professional knowledge, competence, skill, and effectiveness. Professional development of teachers sits at the heart of any successful use of technology in teaching. Professional development has a significant influence on how well ICT is embraced in teaching. Teachers need to be given opportunities to practice using technology during their teacher training programs so that they can see ways in which technology can be used to supplement their classroom activities. Rosenthal, (1999) argues that teachers are more likely to integrate ICT in their courses, when professional training in the use of ICT provides them time to practice with the technology and to learn, share and collaborate with colleagues. According to Bordbar, (2010) teachers who spent more time in professional development activities are more likely to show that they felt well prepared to teach with computer technology. Therefore professional development in ICT use in teaching provides teachers with the necessary skills to include information and communication technology into their teaching and learning and also provide numerous initiatives to urge teachers to use ICT in teaching.

5.4.4 Accessibility of ICT Facilities

This study suggests that, efficient and effective use of technology depends on the availability of hardware and software and the equity of access to resources by teachers. The results of the study revealed that teachers who had own computers, computers labs and media rooms in their schools acknowledged that occasionally

they were more likely to use them in instruction and lesson preparation than teachers who did not; furthermore the study results discloses that more than 50% of teachers who had computers in their schools used them for research and activities related to lesson preparation and teaching. Effective adoption and integration of ICT into teaching in schools depends mainly on the availability and accessibility of ICT resources such as hardware, software, etc. Another study by Yildrim (2007) found that access to technological resources is one of the effective ways to teachers' pedagogical use of ICT in teaching. Therefore, access to ICT facilities such as internet, CDs, updated software and hardware are key elements to successful adoption and integration of technology in teaching.

5.4.5 Availability of ICT Technical Support

Based on the findings obtained from this study, it is suggested that in order to understand how computer technology is effectively used by teachers, it is essential to provide sufficient support from computer experts. ICT support in schools helps teachers to use it in teaching without losing time through solving software and hardware problems. According to Yilmaz, (2011) it is significant to provide teachers with technical support concerning repair and maintenance to continue the use of ICT in schools. Tong and Trinidad, (2005), asserts that if there is no technical support for teachers, they will be disappointed to use ICT. Therefore, ICT support in schools helps teachers to use it in teaching without losing time through solving software and hardware problems, get rid of the fear of equipment failure and that technical maintenance will be carried out regularly, resulting in less risk of technical breakdown.

5.5   Chapter Summary

This chapter presents discussion of the findings of the study. The research questions lead the discussion which is organized under the following broad themes: the barriers hindering the use of ICT to facilitate teaching in secondary schools, the benefits of using ICT to facilitate teaching and the factors influencing the use of ICT to facilitate teaching in secondary schools.

CHAPTER SIX

6.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1   Introduction

This chapter provides the last part of the research report; it covers summary, conclusion, and recommendations for actions and for further research.

6.2   Summary

This study intended to examine teachers' experiences on the use of ICT to facilitate teaching in secondary schools in Tanzania: A case of Ilala District secondary schools.

The study was guided by three objectives:

i)   To explore benefits of using ICT to facilitate teaching process in secondary schools in Ilala district.

ii) To explore the barriers of using ICT to facilitate teaching process in secondary schools in Ilala district, and

iii) To identify the factors determining the use ICT in teaching process in secondary schools in Ilala district.

The study intended to address the following research questions:

i)   What are the barriers of using ICT to facilitating teaching process in secondary schools in Ilala district?

ii) What are the benefits of using ICT to facilitating teaching process in secondary schools in Ilala district?

iii)   What are factor determining the use of ICT to facilitate teaching processes in secondary schools in Ilala district?

The Sample was selected from 8 different secondary schools located in Ilala Municipal. The participants selected were expected to provide maximum information about the research problem.

The sample size of 70 respondents were purposely selected to provide information regarding their experience on the use of ICT to facilitate teaching within their schools through the questionnaire. Also interview schedule were used to support information obtained through questionnaire and to increase reliability of the findings. The study employed descriptive survey research design. According to Smith, Thorpe, and Lowe (2002) the main purpose of a descriptive survey design is to obtain information from a defined set of people so as to generalize the sample results to the population. Gray, (2004) maintains that descriptive survey tends to use an inductive approach, often using open-ended questions to explore perspectives.

6.3   Summary of the Findings

The summary of the findings is organized in line with the research questions.

6.2.1 Benefits of Using ICT to facilitate Teaching Processes in Selected Secondary Schools in Ilala District

On examining the benefits of using ICT to facilitate teaching, the following were identified as the benefits of using ICT to facilitate teaching: - individualized

interactivity, delivery of educational resources, access to global knowledge base, facilitate integration with resources, simplify teachers work. The study indicates that using ICT in teaching has benefits to teachers.

6.2.2 Barriers Hindering Use of ICT in Teaching and Learning In Selected Secondary Schools in Ilala District

Teachers' attitude, teacher confidence and competence, unlimited access to ICT resources and facilities and lack of technical support, inadequate ICT infrastructure on ICT and lack of professional development were identified as the barriers hindering teachers to use ICT to facilitate teaching in secondary schools.

6.2.3 Factors Determining the Use of ICT to Facilitate Teaching in Secondary Schools

On examining the factors determining the use of ICT in teaching in secondary schools, the study identified the following factors:- teachers' positive attitude, teachers' competence in ICT use, accessibility of ICT facilities, professional development and availability of technical support.

6.3 Implication of the Study

The findings of the study established that secondary school teachers in Ilala District are qualified to teach in secondary schools. The results shows that there is a gender gap among teachers, according to the finding of the study male teachers show to frequently use ICT in teaching as compared to the female teachers, the study also identified a generation gap amongst teachers' junior teachers demonstrating much interest of learning how to and integrating ICT in teaching as compared to senior

teachers, the study reveals there is a digital divide- the gap between schools who have access to ICT facilities and those who do not, which makes a huge difference in the use of ICT in teaching among schools. The findings of the study also identify a direct relationship between level of education among teachers and their use of ICT to facilitate teaching, whereby teachers with first degree or higher have shown intentions and interest in using ICT to facilitate teaching as compared to diploma holders.

According to objective one of this study, the finding indicates that teachers are aware of benefits of using ICT in teaching. Teachers were able to identify the benefits of using ICT to facilitate teaching which are; - ICT make teaching job easier, ICT promote individualized interactivity, ICT improves delivery of educational resources, and ICT offers a wide access to global knowledge, ICT facilitate interaction with resources.

In objective two of the study, the following were identified as barriers of the using ICT in teaching; - negative attitude, teacher competence and confidence, teaching experience, inadequate infrastructure, lack of training and lack of technical support.

The third objective of this study was to identify the determinants of ICT use in teaching and the teachers these variables were identified as determinants of ICT integration in teaching: - positive attitude towards ICT, teacher competence and confidence in ICT use, availability and accessibility of ICT infrastructure and availability of technical support.

The major implication of this study is, teachers are aware of the benefits of using ICT in teaching and generally they support the use of ICT in teaching, however majority of the teachers prefer traditional way of teaching. According to the study findings, teachers do face barriers when using ICT in teaching and these barriers constrains them from using ICT in teaching.

For the successful integration of ICT in teaching, the identified factors as determinants for the use of ICT in teaching must be given a serious consideration by ensuring the barriers are reduced or completely eliminated through;- increasing access to ICT facilities (computers, connectivity, software, rooms etc.), training teachers on how to use ICT in teaching, hire ICT technical support staff ,teachers to change their attitudes towards ICT use , provide pre service and in service trainings and seminars on how to integrate ICT in teaching, investing in ICT infrastructures and resources.

6.4   Conclusions

In line with the findings obtained and the ensuing discussion, the following conclusions can be made:

- The use of ICT in teaching processes has benefits to teachers.

- The barriers that hinder using of ICT in teaching and learning can be eliminated.

- For successful integration of ICT in teaching, the determining factors must be given consideration.

6.5   Recommendation

The study recommends that teachers should develop positive attitude towards ICT, teachers should be trained on how to use ICT in teaching. The study also recommends that schools authorities should empower teachers by facilitating in-service training, provide enough ICT facilities. The Ministry of education needs to give more funds to establish at least minimum ICT facilities to enable the school to have these infrastructures for teaching.

The study further recommends that the government through the Ministry of Education should make ICT training mandatory in Teachers education, introduce in-service ICT training programmes for teachers in public schools, fund public schools to purchase ICT infrastructures, employ ICT technical staff in public schools as there are laboratory technicians in public schools, teachers resource centres should be equipped with ICT facilities for immediate access.

6.5.1 Recommendation for Further Research

This study was only carried out in secondary schools in Ilala District. The researcher therefore recommends that a similar study can be done in other districts in Tanzania to widely disclose the experience of teachers on the challenges facing them in using ICT in teaching and learning.

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APPENDICES

APPENDIX I: Budget

The study will incur a cost as indicated in this budget.

ACTIVITIES	AMOUNT(TSHS)
Data collection for 30 days daily subsistence allowance @Tsh 50,000/=	1500000/=
Transport with Dar es salaam @day 10,000x30day	300000/=
SUB TOTAL	1800000/=
Data analysis and interpretation 30 days@tsh 50,000/=	1500000/=
Stationery cost for 1st draft	100000/=
Stationery cost for final draft (including binding)	110,000/=
SUB TOTAL	1710,000/=
GRAND TOTAL	3,510,000/=

APPENDIX II: - Questionnaire   for Teachers

Objective:-

The questionnaire intended to collect information on the use of ICT to facilitate the

teaching process in Secondary Schools. This is purely an academic work conducted

in partial fulfilment of Master's Degree in Education, Administration, Planning and

Policy Studies (MEDAPPS)

All answers in this work remain as a confidential

Questions:-

   1. Please enter the name of your institution

   2. Tick your sex

    i.   Male   (   )

   ii.   Female   (   )

   3. What is your age?

     Tick one box only

     30 or less   ☐

     31-35   ☐

     36-45   ☐

     46-55   ☐

     More than 55 ☐

   4. Tick your education level

    i.   Certificate   (   )

   ii.   Diploma   (   )

  iii.   Bachelor   (   )

   iv.   Postgraduate   (   )

5. For how many years have you been teaching in secondary schools? *Numeric characters only. Use decimal point (.) and not comma if necessary.*

6. Do you have your own computer in an office at the institution?

    Yes, a desktop computer ☐

    Yes, a laptop computer ☐

    Yes, both of them ☐

    No ☐

7. What best describes your level of technology expertise?(tick)

    I'm very uncomfortable using technology at home ☐

    I'm fairly uncomfortable using technology at home ☐

    I'm fairly comfortable using technology at home ☐

    I'm very comfortable using technology at home ☐

8. Does the School have computer laboratory?

    Yes ☐

    No ☐

9. Does the School provide Internet access to the students and teachers?

    Yes ☐

    No ☐

10. Have you ever used ICT in your classroom?

    i.   Yes   (   )

    ii. No   (   )

11. If **Yes**. What motivated you to integrate your lesson with ICT?

    i.   _____

12. If **No.** why?

i. _____

_____

13. Do you think using ICT in classroom teaching has benefit to both students and the teacher?

    i.   Yes   (   )   ii.   No   (   )

14. If Yes, elaborate how

_____

_____

15. Do you think the use the ICT during lessons has the following benefits on both teachers and students?

	Strongly Agree	Agree	Disagree	Strongly Disagree
Facilitate and make teaching easier				
Invividualized interactivity				
Delivery of educational resources				
Access to global knowledge base				
Facilitate interaction with resources				

16. Do you think the following suggested barriers hinders the use of ICT in classroom teaching?

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
The availability of and access to ICT facilities and resources					
Teachers' attitude towards the use of ICT					
Teachers' ICT competence and confidence					
Teachers' ICT professional development					
Availability of technical support					

17. Do you think the following practices may enhance the use of ICT in classroom teaching?

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Positive attitude and confidence towards ICT use					
Competence in ICT use					
Professional development					
Availability of technical support					
Availability and accessibility of ICT facilities					

APPENDIX 3: Interview Questions to Teachers and Education Stakeholders

    i.   What are the barriers of using ICT in secondary school teaching?

    ii.   What are the benefits of using ICT in secondary school teaching?

    iii.   In which ways we can improve the use of ICT in secondary school teaching?