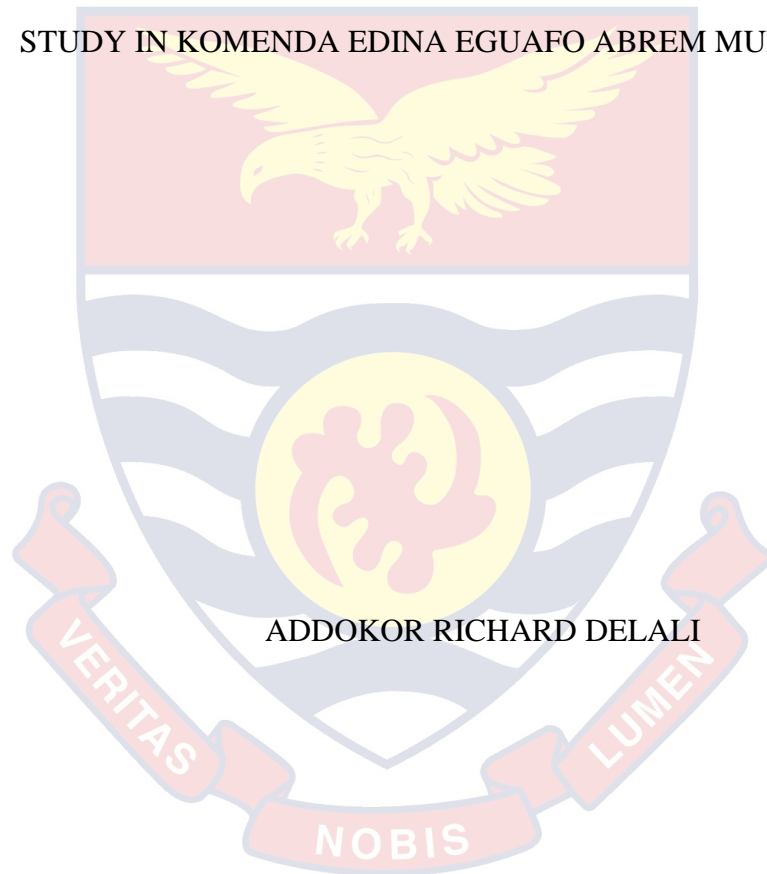


UNIVERSITY OF CAPE COAST

CHALLENGES FACING TEACHERS IN TEACHING INFORMATION
COMMUNICATION TECHNOLOGY IN BASIC SCHOOLS: A CASE
STUDY IN KOMENDA EDINA EGUAFO ABREM MUNICIPALITY

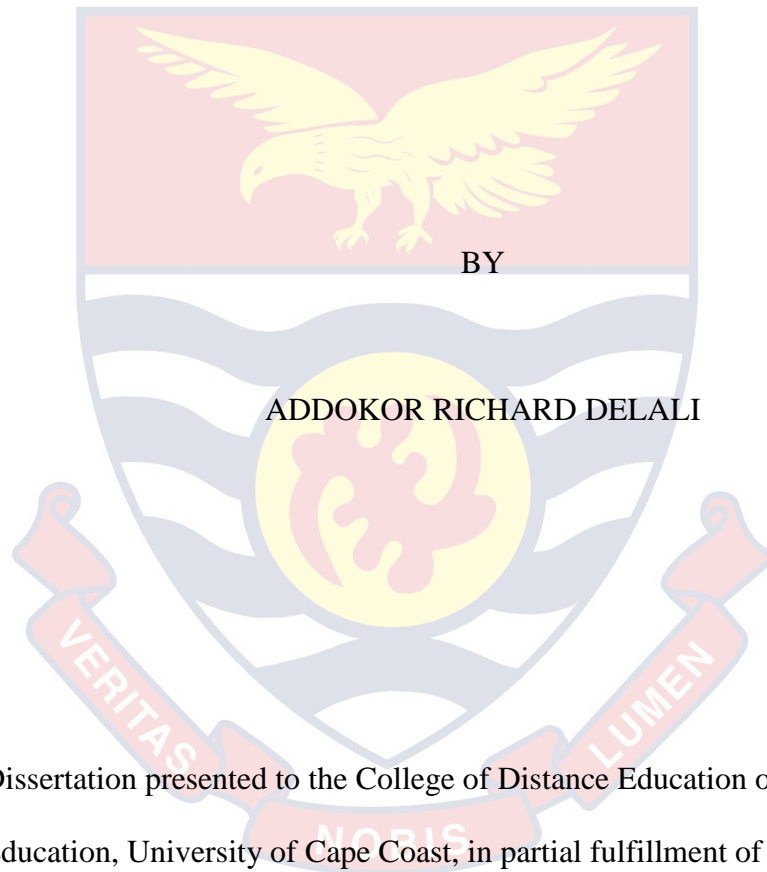


ADDOKOR RICHARD DELALI

2020

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Dissertation presented to the College of Distance Education of the Faculty of
Education, University of Cape Coast, in partial fulfillment of the requirements
for the award of Master of Education, Information Technology

JULY 20

DECLARATION

Candidate's Declaration

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

Signature Date

Candidate ADDOKOR RICHARD DELALI

Supervisor's Declaration

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

Signature Date

Supervisor: PORF. PAUL AHANTROGAH

ABSTRACT

The study was carried out to find the challenges that face teachers in teaching information communication technology in basic schools in Komenda Edina Eguafo Abrem (KEEA) Municipality in the Central Region.

A descriptive design was used to determine and report the findings of the study. The study covered six out of twelve public schools in Elmina circuit in KEEA Municipality. In all, 58 teachers were involved in the study. Questionnaires were the main instrument used in the collection of data for the study. Data collected was analyzed using frequencies and percentages.

The result of the study shows that the schools do not have adequate ICT tools and equipment necessary for practical lessons. It is also an evident from the study that, most teachers do not have adequate skills to integrate ICT in their teaching and learning processes. It also indicated that most teachers do not have good attitudes towards the use of ICT in the teaching and learning processes and this may be because most teachers do not have requisite skills in handling IT tools and equipment. Moreover, the study shows that majority of the teachers have positive perception in relation to the use of ICT in the classroom.

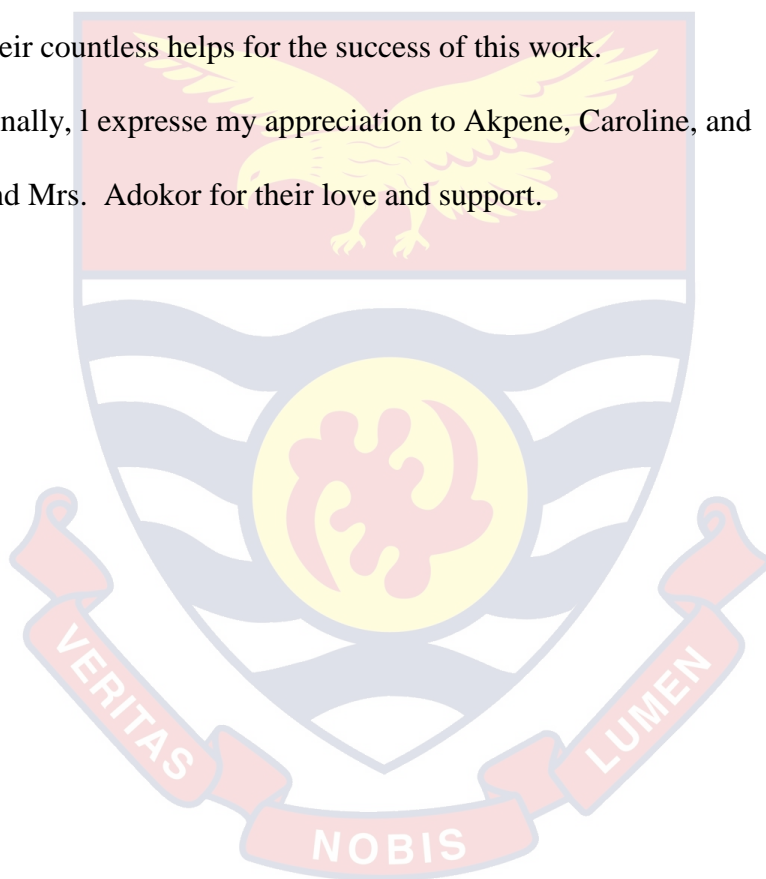
There is the need for the release of funds for purchasing and repairing ICT tools and equipment in basic schools. ICT laboratories should be built for our basic schools to accommodate enough students at time looking at their population size for effective and efficient teaching and learning environment. Finally, periodic conferences, workshops or seminars on ICT in education should be organized for the basic school teachers.

ACKNOWLEDGEMENT

I am heavily indebted to Mr. Paul Ahiatrogah, my supervisor and lecturer whose comments and suggestions have contributed greatly to the success of this research work. I am sincerely grateful to him for his display of concern, tolerance, patience and understanding throughout the period of this work.

I am also grateful to Mr. J P. K. Adotey at the Chemistry Department of the University of Cape Coast, Mr. Timothy Agboka of Vakpo Senior School for their countless helps for the success of this work.

Finally, I express my appreciation to Akpene, Caroline, and my parents Mr. and Mrs. Adokor for their love and support.



DEDICATION

To my lovely children Millicent, Phyllis, Anthoinette and Eli Addokor



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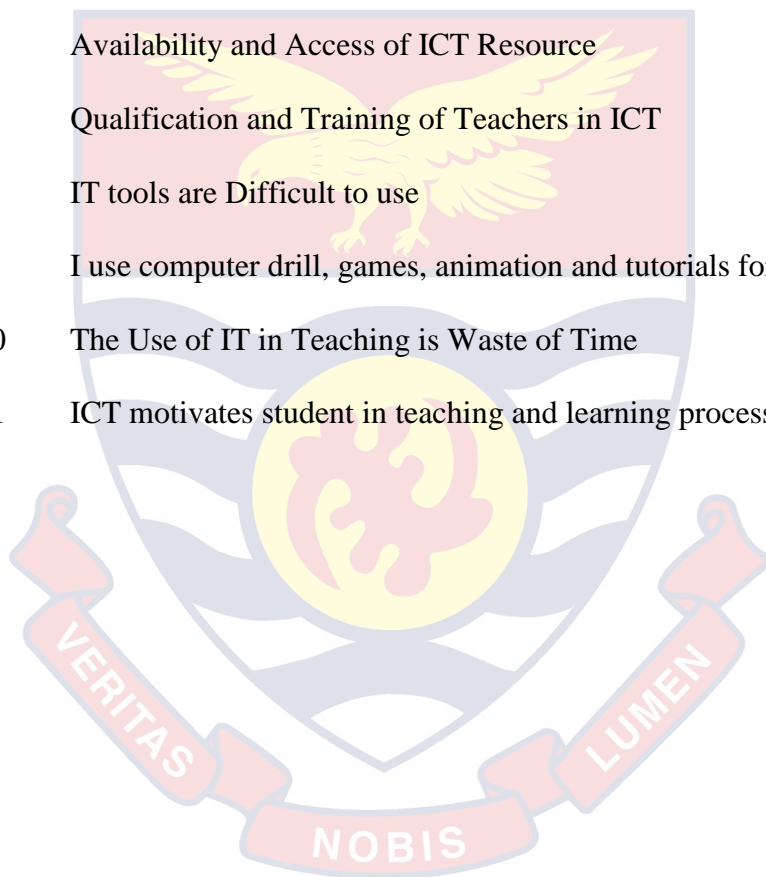
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CHAPTER ONE

INTRODUCTION

Chapter one provides the background to the study, statement of the problem, the research questions, the significance of the study, the purpose of the study, delimitation, limitation and preliminary definition of terms.

Background to the Study

The developments and exploitation of Information and Communication Technology (ICT) in schools in Ghana has had an operational history over a decade or two. Although, at the beginning, there had been several efforts at developing ICT in schools, there had not been any defined policy direction for ICT education as to what specifically was needed to be achieved and the strategy for it (Hawkins, 2002). In the process, several initiatives on ICT education were started by different interest groups to meet different needs. Toward the end of 2003, the tempo increased with the development of the national ICT for Accelerated Development Policy (Hawkins, 2002).

As of now, the use of ICT (computer) is becoming more persuasive in Ghana and the number of computers for educational purposes in our institutions is growing. In the process, there is proliferation of equipment standards for seemingly different goals. This situation has arisen because even though government has come out with a national policy for ICT, there is the need for a well-defined policy direction in the development and exploitation of ICT in the arena of education.

It is on these premises that the government of Ghana is committed to enrich knowledge in the use of Information and Communication Technology

(ICT) tools in the basic Schools, Colleges and Universities and the improvement of the education system as a whole.

The development of ICT in education will result in the creation of new possibilities for learners and teachers to engage in new ways of information acquisition and analysis. ICT, however, will enhance access to education and improve the quality of education delivery on equitable basis. Hence, the government commitment to a comprehensive programme of rapid development and utilization of ICT within the education sector to transform the education system and hence improve the lives of people.

It is the desire of government that through the development of ICT in our Educational Institutions, the culture and practice of traditional memory – based learning will be transformed to education that stimulates thinking and creativity necessary to meet the challenges of the 21st Century (President’s Committee on Review of Education in Ghana, 2002). Hence, government collaboration with *rlg* Company to give each pupil a laptop throughout the country is a laudable idea.

This remarkable step, it is hoped, will contribute to knowledge production among teachers and students in schools (Tettey-Enyo, 2009). It is, however, worthy of note that the policies and reforms have been besieged with some challenges which must properly be examined and worked at. Some of the issues include: Lack of adequate planning for implementation of ICT, inadequate teacher training, lack of information regarding the distribution of ICT facilities, low levels of literacy in general, lack of relevant content and technological applications to meet the needs of diverse societies, high cost of

infrastructure development, and high cost of acquisition of computer hardware and software

It is interesting to note that in Ghana, computers are found in some of the well-endowed basic and senior high schools in the urban areas all over the country while less-endowed schools in rural areas do not have even electricity much less access to the computer. Although, these less-endowed schools are writing the same final examination in ICT with their colleagues in well-endowed schools. More so, these electronic devices are scarcely used for teaching purposes. This phenomenon is not surprising as the use of computer for teaching purposes is at its infant stage in the country and Africa as a whole Harvey (1983).

Tchombe et al. (2008) opined that it is not just acquiring the knowledge of ICT that is important but also teachers need to understand how to use ICT pedagogically. The authors asserted that ICT, if used appropriately, can stimulate the development of higher cognitive skills, deepen learning and contribute to the acquisition of skills needed for learning life-long and for working in today's job market.

During the last few years, ICT has been adopted in many areas such as business, entertainment, government and education. The global adoption of computers has been the landmark on the educational scene for the last few years in Ghana. Harvey (1983) imagined that the effective use of computers in education may be an important factor in determining which countries will succeed in the future. Harvey's assertion borders on the fact that computers are used in schools as objects of instruction to acquire knowledge and skills to

meet the challenges of the information age. Computers are used for learning and instructional purposes.

Teachers use computers to write lesson plans, prepare materials for teaching, record and calculate student grades, and communicate with other teachers. As such, computers have become a routine tool for helping teachers accomplish their professional work (Becker, Ravitz & Wong, 1999).

In fact, for teachers to effectively implement ICT in their curricula delivery to support the learners' experience they must have adequate knowledge and skills in and about the tool and have all the resources needed for the implementation of the technology in teaching.

Successful integration of ICT in schools depends largely on the competence and attitude of teachers toward the teaching and learning of modern technologies. Thus, experienced teachers need to be confident in using ICT tools effectively in their teaching and learning processes. Simply having ICT tools in school will not guarantee their effective use. Regardless of the quantity and quality of technology placed in the classrooms, the key to how these tools are used is the teacher.

Teachers with pedagogical proficiency who are ready and willing to transmit knowledge and support students to construct knowledge will normally make a difference in any learning process. In this age of ICT and its integration in the educational system, the role of the teacher should not be overlooked or underestimated. If teachers possess little knowledge of ICT then the integration of ICT into pedagogical practices is seriously under compromised.

Teachers must have opportunities to develop requisite aptitudes, be able to observe or experience constructive learning, and be motivated.

Moreover, teachers may also have competence, the right attitude and all the skills that are needed for handling and integrating ICT in education however, implementation of ICT and its use in school curriculum will not be effective, if ICTs tools and materials are not in place.

Therefore, the focus is on the challenges facing teachers in teaching ICT as a subject in basic school curriculum.

Statement of the Problem

In Ghana, the educational reforms, policies and practices that were formulated in the post-colonial era have done little in bridging the gap that have been created between schools in the urban areas and those in the rural communities. Most often than not, these schools in the rural areas are faced with a lot of problems such as the lack of qualified teachers, inadequate infrastructure and poor implementation of government policies. The foregoing challenges result in stakeholders in those rural areas being heavily dependent on teachers of other fields of study with a little knowledge to remedy the situation. Some other stakeholders even go to hire the services of people in their communities with a fair knowledge to assist their students. Almost all of these people are not professional teachers or fully baked professionals in IT. It is clearly evident that these incompetent, low-level ICT users will have to impart knowledge of the use of the new technology to students, then the competency level of their student may also be low and students may not be benefiting from the use of the new technology. According to John and Sutherland (2004) the benefits to students of using new technology is greatly

dependent on the technological skills of the teachers and the teacher's attitude to the presence of the technology in teaching and learning.

It was observed that in the Komenda Edina Eguafo Abrem (KEEA) Municipality, teachers in basic school find it difficult to teach ICT as a subject and integrate it into the curriculum delivery. This could be attributed to the fact that ICT has just been introduced in Teacher Training Colleges' curriculum and teachers that have graduated prior to this may not have adequate knowledge and skills to handle ICT tools effectively in curriculum delivery. Moreover, adequate facilities are not provided to the schools to implement the subject effectively in the school curriculum. Teachers are, therefore, faced with a lot of challenges when teaching ICT.

Purpose of the Study

Generally, the study seeks to investigate the challenges that face teachers teaching Information and Communication Technology as a subject in Basic Schools in Komenda Edina Eguafo Abrem (K. E. E. A) Municipality.

Specifically, the study seeks to:

1. find out the facilities and equipments are available for the integration of ICT into education in Basic Schools in Komenda Edina Eguafo Abrem (K. E. E. A) Municipal.
2. examine the proficiency of teachers in the use of ICT.
3. examine the attitudes of teachers in the use of computers.
4. assess the extent of availability of ICTs tools or equipment in the schools.

Research Questions

In order to investigate the challenges that teachers face in teaching ICT as a subject in Basic School in Komenda Edina Egufo Abrem Municipality, the following research questions were considered.

1. What facilities and equipment are available for the integration of ICT in education in Basic Schools in Komenda Edina Egufo Abrem (K. E. E. A) Municipality?
2. Do the teachers have the requisite training and qualification in the use of ICT to teach?
3. What are the attitudes of teachers toward the use of computers in teaching?
3. What perceptions do teachers in the Basic Schools in Komenda Edina Egufo Abrem (K. E. E. A) Municipality have in relation to the use of ICT in the classroom?

Significance of the Study

LoBiondo-Wood and Haber (2002) stated that the problem under study should be of significance to the topic and should contribute to the body of knowledge. Therefore, the findings of the study would:

1. help identify the specific challenges that ICT teachers face in teaching ICT.
2. encourage stakeholders to organize in-service training in ICT for teachers.
3. set foundation for further studies into the use of ICT in urban and rural area schools.
4. contribute to knowledge in the discipline.

The result of this study can lead to the identification of certain basic problems facing teaching and learning of ICT as a subject in Basic Schools and come out with some recommendations that will help find solutions to the problems.

The study also come out with recommendations which will help teachers of ICT develop a positive interest in ICT as a subject and guide policy makers to develop effective curriculum activities in ICT.

Delimitation of the study

The study intended to cover a wide ground for the research but due to time limit within which the research has to be completed, this has not been possible. Secondly, because of financial constraints, the research was not able to meet the high cost of travelling far, and therefore, the research is concentrated on basic schools teachers in Komenda-Edina-Eguafo-Abrem Municipality because of its proximity and familiarity for data collection with relative ease.

Limitation

The major limitation of this study is that some of the information provided by the respondents might not be the true reflection of the reality since some of the respondents expressed some kind of suspicion about the whole exercise. This situation in the researcher's view could affect the validity of the conclusions drawn from the study. The above limitation notwithstanding, it is believed that views collected are fairly representative of those of the entire population.

Organization of the Study

The work has been organized into five different chapters. The first chapter provides the introduction of this study. It proposes the extensive construction inherent in this study. Thus, it provides adequate background of information to allow the reader understand the reason behind the study and what the researcher intends to accomplish by undertaking the study. The chapter will give an overview of the whole study. Chapter two of the work reviews earlier research related to the research topic with specific reference to the research objectives. It presents extracts from books, journals and collected works that are helpful in carrying out this work and justifying key conclusions and recommendations. Chapter three also provides details of how data was collected, organized and analyzed. It covers the varied techniques and tools used to collect and analyze data to gain valid results. Chapter four provides research findings and analysis obtained through the methodology outlined in chapter three. Finally, chapter five provides a summary of findings, conclusions from the study and recommendations for users of the research.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter discusses the literature review undertaken on challenges facing teachers in teaching Information Communication Technology in basic schools. According to Polit and Hungler (1999), a literature review comprises the searching, identification and understanding of information relevant to the research topic. Hoover-Dempsey (2001) explained that the researcher should start reviewing the literature once the problem has been identified. The literature review provides the researcher with information pertinent to the study and indicates what research has already been done on the topic. Reasons for conducting the literature review include avoiding duplication of a previous study; enabling the researcher to develop a relevant framework for his/her research, provides ideas about the study, reveal research strategies and guide the researcher in discussing the results of the current study by comparing and contrasting a specific study's results with those of previously reported studies. Burns and Grove (2001) defined literature as being the written information on a topic consisting of primary and secondary sources. Primary sources are written by the people responsible for generating the ideas while the secondary sources are summaries or quotations from the primary sources.

The purpose of the literature review in this study is to obtain information on challenges facing teachers in teaching Information Communication Technology in basic schools in Komenda Edina Eguafu Abrem. This could assist the researcher to understand the topic, ascertain pre-

knowledge in relation to the research problem and identify potential solutions (Polit & Hungler 1999).

Contextual Overview

The use of ICT in the classroom has become important, as it provides opportunities for students to learn how to operate in an information age. The study of obstacles to the use of ICT in education may assist educators in overcoming barriers and support students in becoming successful technology adopters in the future. This literature review evaluates some relevant literature and aims to identify the perceived barriers to technology integration in education.

The availability of computer equipment per say does not in itself guarantees ICT integration in education. Granger et al. (2002) posited that successful implementation is a complex process, determined by pedagogical values, attitudes, curricular needs and physical infrastructures. Akbaba – Altun (2004) concluded that successful integration of technology is not simple because it depends on such interlinking variables. ICT is radically transforming the curriculum in a number of ways, demanding that teachers reflect on new pedagogy and not the traditional methodologies.

Educators themselves assert that the integration of ICT into the classroom will greatly enhance the learning experience (Sutherland et al., 2004). The growth of ICT itself dictates that in order for students to adjust to modern society and the global economy, the way in which they are taught and what they are taught, requires adjustments to and around ICT (Watson 1996).

Balanskat et al (2006), however argued that although educators appear to acknowledge the value of ICT, difficulties continue to be encountered in

adopting and integrating such technologies. Mueller et al. (2008), concluded that although many teachers are comfortable with technology in general, they still may not be ready or capable of integrating such technology in their classrooms. The following section will provide a brief overview of what ICT integration means.

A Conceptual Framework for Challenges Facing Teachers in Teaching

An activity systems conceptual framework was adapted to map the ICT teacher development landscape from national level to local levels in Ghana. Activity systems are currently widely applied to study technology-based learning and working situations (Vygotsky, 1978). The use of activity systems supports the idea that ICT needs to be studied within the learning environment and also within the broader social, economic, and policy contexts and dynamics in which it is situated.

The purpose for using the activity systems conceptual framework was to build a more detailed account of national and institutional objectives of ICT integration in education and in teacher development in Ghana. This is to enable the understanding of the successes, challenges, needs and opportunities at different system levels.

A survey was developed with broad questions in six key areas relevant to the situational and needs assessment mapping, namely:

1. Mandate – institutional and organizational mandates related to ICT in education and teacher development
2. Actors – Who is involved?
3. Policy and objectives – for ICT integration in education and teacher development

4. Resources – ICT and non-ICT resources available or required for ICT in education and teacher development
5. Regulatory frameworks – curriculum and development frameworks for ICT integration
6. Community – public private partnership & networks for ICT in education and teacher development (Engestrom, 2003).

Activity System Conceptual Framework Tools

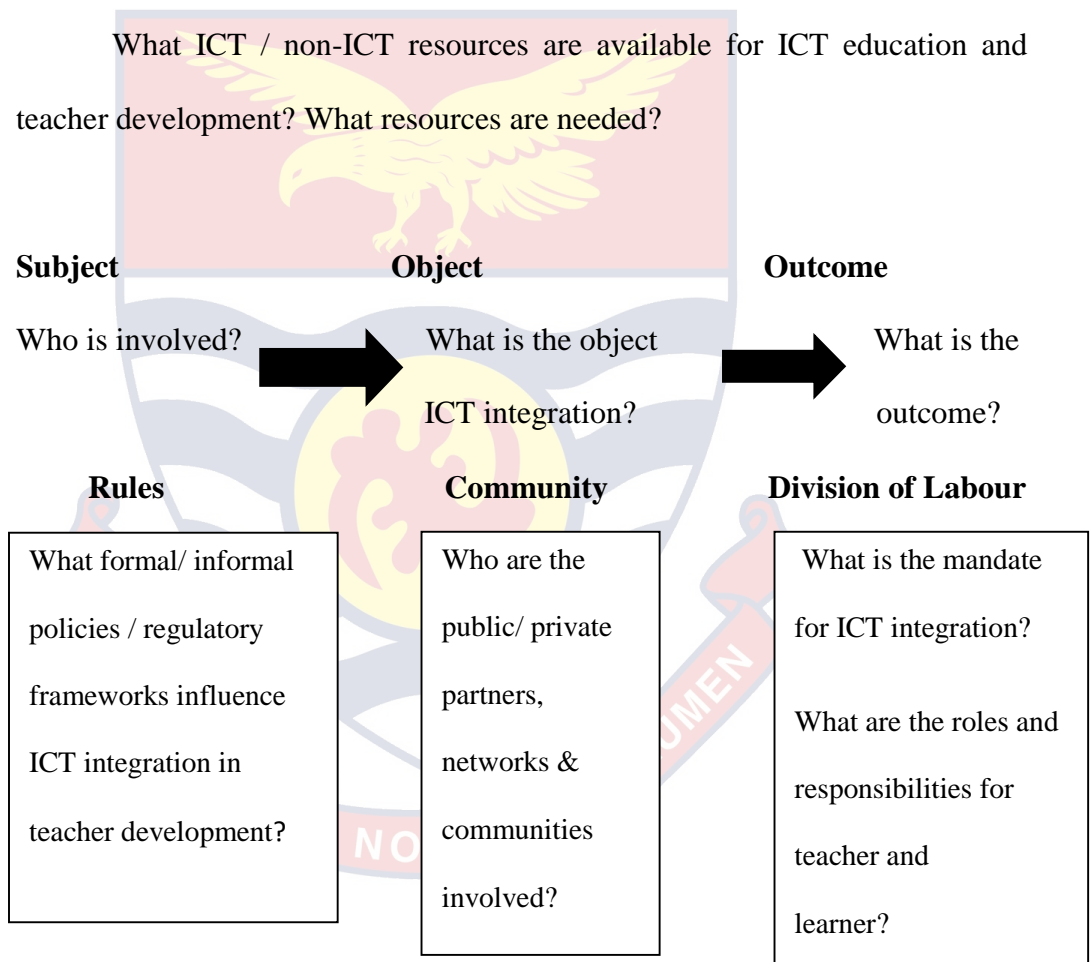


Figure 1: Activity System Interview Protocol - Adapted from Engestrom (2003).

Meaning of ICT Integration in Education

In order to appreciate what is meant by ICT integration in education, it is important that we know the origin of ICT and what it really is. Research has

it that the use of computers became popular in the 1980's when personal computers became available to consumers. Again research has shown that it is this global competition that has influenced governmental policies all over the world in ensuring that they keep pace with these technological advancements. These policies motivated the mass production of computers for schools. Several researchers suggested that ICT will be an important part of the education process for the next generation.

According to Pelgrum and Law (2000), history has it that towards the end of the 1980's, the term 'information technology' began to replace the word 'computer'. The term information technology, therefore, referred to computer's processing ability, indicating a shift from computing technology to the capacity to store and retrieve information. Pelgrum and Law (2003) again posited that the term ICT emerged, signalling the introduction of e – mail and electronic messaging with computer technology. Simply put, ICT is an accepted acronym of the word information communication technology. It is a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information (Blurton, 1999). This means that ICT helps in the storage and management of information. Also, Ayo (2001) defined ICT as the use of computer systems and telecommunications equipment in information processing. Finally, ICT as described by Scott (2002) encompasses a range of applications, communications and technologies which aid information retrieval and research communication and administration. These include internet access, electronic mail, CD-ROMS, telephone, on line databases, library services and fax machines. Obeng (2004) stated that many educational ministries around the

world have made the commitment to computerize schools by providing additional facilities like computer laboratories, wireless internet connection and local area network to assist teachers' in their professional tasks.

The emerging phenomenon was welcomed in the 1980's that educational systems needed to prepare students to adjust to and survive in this new technologically driven society. This meant preparing students for "lifelong learning in an information society" (Pelgrum and Law, 2003). Allied to this, early advocates of ICT integrated education, saw it as a catalyst for change, fostering skills in problem solving and critical thinking, as well as the development of student centred learning (Pelgrum, 2001).

According to Kozma (2005) there are three rationales for the introduction of ICT into education. The first one is the economic rationale which refers to the role it can play in preparing students as future workers and in supporting economic development. The second is the social rationale where ICT investment aims to increase knowledge sharing, encourage cultural creativity, increase civic participation, make government services more accessible and finally enhance social cohesion. The third rationale is the educational and pedagogic rationale where ICT can advance educational reform and improve educational management structures. Similarly, Hepp et al. (2004) broadly concur, identifying three reasons for the use of ICT in education: the development of new skills for the information age, increased productivity and the development of quality learning.

Hawkrige (1990) proposed four rationales for the utilization of computers in schools. He noted these as social, vocational, pedagogical and catalytically. The social and vocational rationales point to the increased use of

ICT in all spheres of human activity. The pedagogical and catalytically rationales relate to the effects of technology on students and schools. According to Bigum (1997) arguments for using computers in schools stem from technological and socially determined points of view. His standpoint is that the school system within which the computer is used is driven by computers. He argues that a change occurs within the education system using the computer and that change is as a result of the effect of technology.

Bigum (1997) argued that the social context sees computers as neutral technology-technical means of achieving a defined purpose in education. Two contexts emerge and are used in this study that is social context and pedagogical context. The social context runs along the lines of Hawkrige (1990) social and vocational rationales, while the pedagogical context agrees with Hawkrige's pedagogical and catalytically rationales. The pedagogical context also agrees with the views of Bigum (1997). Drent and Meelissen (2008) identified three objectives for the integration of ICT in education. They are the use of ICT as a 'discipline or profession; ICT as a 'teaching or learning medium' and the use of ICT as an 'object of study' (Drent and Meelissen, 2008, p.187). It can be gleaned from these objectives that integration involves aiding the teaching and learning process (apart from the third objective which is a discipline in itself). Successful integration of ICT in education can lead to a number of benefits. The next session will look at some of the benefits.

Qualification, Training and Competence of Teachers in ICT

In recent years, ICT-related initiatives are adopted and implemented by education systems with greater appreciation of their complexity. A major aspect of the complexity involved with ICT integration into education systems

is based on the many factors involved with it including factors associated with the human side of the integration (e.g. teachers, on-going support, trainers, and headmasters) and the technological side of it (e.g. access to computers, technical support, and the e-materials). During the early attempts of integrating computers into education systems the technology itself was overemphasized at the cost of the human side. These attempts were based on the assumption that technology can revolutionize education and therefore, resources and efforts were diverted to providing schools with computers and other technologies. During that stage, technology was conceived as an end in itself, which resulted in computers being distributed to schools with little thought given to their best use (Richardson, 2009). However, the early attempts were doomed to fail as it became clear that technology could not improve educational practices and outcomes by itself. Therefore, a shift in the focus occurred towards other supporting factors to the successful integration of ICT across education systems.

Teacher training courses, both pre and in-service, can help teachers who are tentative to move faster and adopt technology while they show the more enthusiastic teachers new ways in implementing ICT into their profession. Thus, the Jordanian education system has adopted several ICT training courses aiming to improve their use of ICT in the classroom, including International Computer Driving License (ICDL), Intel Teach to the Future, World Links, iEARN and CADER. The courses aimed to improve teachers' ICT proficiency at three levels: ICT skills, pedagogical skills, and curriculum training (Al-Otaibi 2006). The ICDL course focused on improving teachers' ICT skills, including word-processing, spreadsheets, and surfing the

Internet. On the other hand, the *Intel Teach to the Future* program aimed to train teachers and students to use technology effectively in the classroom (Ministry of Education, 2002) and World Links focused on preparing students, teachers and the educational system to enter the information age through providing schools and teachers with skills and educational resources to harness ICT (World Links, 2002). In addition, CADER was offering a Higher Education Diploma in ICT, which specializes in training teachers to use modern pedagogies and integrate them with ICT. While iEARN course had been adopted early in 2004, it was then discarded during the early stage of its implementation, as it appeared to focus only on the student side of the education system.

However, improving teachers' integration of ICT in teaching has proved not to be a straightforward task to be carried by the education system. The literature has identified several factors which can impact the effectiveness of ICT training courses when assigned for teachers. These include individual differences among teachers, school culture and teacher interaction, and follow-up and ongoing support provided to teachers when they try to implement their newly developed skills.

Competence: According to Bingimlas (2009), teacher competence refers primarily to the ability to integrate ICT into pedagogical practice. Lack of knowledge/competence is regarded as a significant teacher related barrier to ICT integration. A teacher's lack of knowledge serves as a considerable challenge to the use of computers in teaching methods and practices. Tezci (2009 as cited in Rodden, 2010) posited that if teachers have a high level of ICT knowledge, then there will be a higher level of ICT use in education.

These barriers, according to some researchers, vary from country to country. Pelgrum (2001) found that lack of knowledge or competence in technology, among teachers in developing nations, is the primary obstacle to the uptake of ICT in education.

Lack of training: A full and complete integration of ICT use in education requires high quality frequent training and professional development. If these trainings are not provided, then attempts at integration will inevitably be unsuccessful. The lack of effective training is a significant challenge recognized by most researchers. . A study by Pelgrum in 2001 revealed that there were not enough training opportunities for teachers in the use of ICT in the classroom.

The training of teachers in the integration of ICT in the learning and teaching process as cited in Rodden (2010) is a difficult one. This is so because a number of complex factors are required to render the training effective. These complex factors include finding the time for training, training in pedagogy, skills training and the use of ICT in the teacher's initial training (Bingimlas, 2009). An earlier similar study conducted by Cox et al. (1999) argued that ICT training for teachers needs to incorporate pedagogical aspects. This study concluded that when teachers received basic ICT training without considering the pedagogical aspects of ICT, they still did not know how to use ICT in class. Schoepp (2005) maintained that if new technology is going to be integrated into education, teachers should receive training on how to use the specific ICT.

Research by Gomes (2005) also concluded that lack of training in digital literacy, lack of pedagogic and didactic training in how to use ICT in

the classroom and lack of training concerning the use of technologies in specific subject areas, were obstacles to the use of new technologies in classroom practice. Cox et al. (1999) asserted that if teachers are to be convinced of the value in using ICT in their teaching, their training should focus on pedagogical issues. Therefore, after teachers had attended professional development courses in ICT, they still did not know how to effectively use ICT in their classrooms. This was because too much emphasis was placed on acquiring technical ICT skills during training, as opposed to skills in how to incorporate ICT into the curriculum.

According to Newhouse (2002), some training is still needed for teachers to develop appropriate skills, knowledge and attitudes, regarding the effective use of computers to support learning by their students. He argued that this also requires continuing professional development, to maintain these appropriate skills and knowledge.

In conclusion, enough training of teachers in ICT can address some of the barriers in the integration of the use of ICT in the teaching and learning process. This is because acquiring the necessary skills will enhance their knowledge base and competence and by extension the level of confidence. The result of this is that it would, in the long run, reduce the fear of ICT and the anxieties related to student expectations and perceptions.

Access and Availability of ICT Tools and Materials

Knowledge is power and it is true that education is fundamental to the development of a dynamic labor force capable of accessing and integrating knowledge into social and economic activities and participating in today's global economy. With the evolution of Information Communication

Technologies, the delivery of education and training is changing. Rapidly, ICT is affecting the way education is delivered and research is conducted. ICT is currently being used effectively in higher education for information access and delivery in libraries, for research and development, for communication, and for teaching and learning (Jacobsen, 1998).

The growing importance of ICT in modern education is evident by the increasing rate of acquisition of computers and other information technologies, for use by staff and students. Although much has been written and said about the value of ICT in teaching, learning and research, studies have shown that successful integration of technology into the university system depends not only on access and availability but also on the extent to which staff and students embrace these technologies (Horgan, 1998). Academic staffs are a core user group who plays a vital role in the successful implementation of ICT projects and initiatives. Hafkin and Taggart (2001) identified factors such as literacy and education, language, time, cost, and geographical location of facilities, social and cultural norms, as well as students' computer information and dissemination skills as constraints against some students and teachers' access to information technology.

Challenges in accessing ICT in education: Computer integration in the classroom is the application of technology to assist, enhance, and extend student knowledge (Omwenga, 2004). Using ICT in education means more than simply teaching learners how to use computers. Technology is a means for improving education and not an end in itself.

A study conducted by Organization for Economic Cooperation Development (OECD 20009d) confirmed that there are a number of barriers or

challenges that inhibit the use of ICT in education. These barriers included an inconsistent number of computers to students, a deficit in maintenance and technical assistance and finally, a lack of computer skills and/or knowledge among teachers. Jenson et al. (2002) classified these barriers to include limited equipment, inadequate skills, minimal support, time constraints and lack of interest or knowledge by teachers.

In a research report conducted by British Educational Communications and Technology Agency (BECTA) in 2004, a number of other important barriers were identified. These were: lack of confidence, accessibility, lack of time, fear of change, poor appreciation of the benefits of ICT and age. Therefore, if teachers are aware of and understand these barriers mentioned, they can initiate strategies to overcome them.

According to Mueller et al. (2008) although valuable lessons may be learned from best practices around the world, there is no one formula for determining the optimal level of ICT integration in the educational system. Significant challenges that policymakers and planners, educators, education administrators, and other stakeholders need to consider include: Educational policy and planning, Infrastructure, Language and content, Capacity building, and Financing.

Several studies have divided the barriers into two categories: extrinsic and intrinsic. However, what was meant by extrinsic and intrinsic differed among studies. In one such study, Ertmer (1999) referred to extrinsic barriers as first order barriers citing examples as lack of time, support, resources and training. She referred to intrinsic barriers as second order barriers, citing as examples: attitudes, beliefs, practices and resistance to change.

Institution related barriers in accessing ICT: The environment or conditions prevailing in the various institutions or schools can also be a factor that will inhibit the integration of ICT into the learning and teaching process. These conditions can be varied depending on where the school is located and the class or category of the school. Some of these include but not limited to the following: Technical problems and shortage of computers in laboratory, lack of detailed plan into how ICT can be used to enhance the teaching and learning and willingness of school authorities to provide the needed funds when the need arises.

Problems of ICT skilled staffs and infrastructure: It is important to acknowledge that ICT can have technical problems and contingency planning is necessary to ensure alternative strategies are in place. Where the infrastructure and the platform for the application are unreliable, the output may be affected and this can adversely affect student motivation.

As computers are becoming more sophisticated and the range of software used by schools continues to increase, the schools must recognize the need to employ more and highly qualified technical staff. However, with pressure on budgets and competition from the commercial sector for the best staff, it is becoming increasingly difficult for schools to attract and retain technical staff with the appropriate skills and experience.

Much of the research highlights the need to carefully plan the use of ICT in lessons. Sutherland (2004) summed this up as, “ICT alone does not enhance learning. How ICT is incorporated into learning activities is what is important”. Abbott et al. (2004) also stressed the importance of detailed lesson planning when using ICT and that, students must be encouraged to understand

the process involved rather than simply focusing on the output. Some teachers may use ICT as a way of encouraging independent learning skill needed to be planned and supervised with the teacher directing the student's activities and outputs. ICT though is an effective tool in the hands of an effective teacher, and not a panacea in its own right. It would seem that prerequisite for success is the subject knowledge of the teacher and his ability to weave the use of ICT into the existing curriculum. Becta (2004) suggested that success comes when teachers use applications that open up new ways of working. It acknowledges that this involves planning and imagination, and the result will be "spectacular"

Incorporating ICT across curriculum requires careful timetabling and corporation among department. Sutherland et al. (2004) pointed out that in Science department; it may not be possible to move practical classes to ICT because of health and safety consideration or site computers in Science laboratory due to space constraints. On other subjects, the time ICT suites are available may not suit the schemes of work planned by the teacher's. Hence, much more cross-curricular and departmental planning is required than most schools do in the past.

Teachers' Attitude toward ICT

A large number of recent studies mostly conducted in controlled settings have revealed that the use of ICT for educational purposes yield positive outcomes on the part of the teachers and students such as increased motivation, active learning, providing efficient resources and better access to information (Young, 2000).

These benefits have generated some attempts leading program developers to bring about educational reforms and initiate national programs to introduce ICT into education in countries worldwide, especially in developing countries. For this purpose, large amounts of money have been invested to the technical and infrastructure-related conditions necessary for ICT integration.

Rogers (2003) puts a special emphasis on user's attitudes towards a new technology. In this theory, the terms innovation and technology are used interchangeably, which proves to be suitable framework for the study of diffusion of ICT in particular. According to this theory, a person goes through five stages while deciding on the adoption (or rejection) of the innovation. These are Knowledge, Persuasion, Decision, Implementation, and Confirmation. These stages follow each other in a time ordered sequence, yet the first two stages are especially important as they immediately precede the decision stage. The knowledge stage covers the users understating of "what", "how" and "why" of the innovation.

Rogers (2003) noted that individuals' level of "how-to" knowledge on the target technology is a crucial determinant for the technology adoption. Similarly, Seemann (2003) expresses the importance of users' knowledge on technology integration by emphasizing both "know-how" and "know-why" knowledge. The knowledge stage is followed by persuasion stage which is related to users' attitude. An individual's level of knowledge affects his attitude, and these two stages together lead the individual to adopt or reject the target technology. Stages four and five occur in the case of adoption.

This innovation decision process is mainly based on the widely accepted idea that attitude affects the behavior directly or indirectly. Teachers' knowledge and attitudes functions as a major predictor of the use of ICT in educational context (Tezci, 2009). Attitudes are thought to consist of three elements: affect, cognition and behavior (Albirini, 2006). Affective element is related to the individuals' emotional case; cognitive element refers to the individuals' knowledge, and behavioral element is the overt behavior. In order to have an exact understanding about one's attitude, all these elements should be taken into consideration.

In the context of ICT integration, however, understanding teachers' attitudes has not always been an easy task depending on the fact that various factors may be at work to affect one's attitude. With regard to ICT integration, one of the major factors shaping people's attitude is the attributes of the technology itself.

Dillon and Morris (1996) summarized the connection between computer attributes and attitudes as "innovations that offer advantages, compatibility with existing practices and beliefs, low complexity, potential trialability, and observability will have a more widespread and rapid rate of diffusion.

In general, modern information and communication technology, internet and particularly computer stimulate, motivate and spark students' appetites for learning and helps to create a culture of success. "This can be demonstrated in their increased commitment to the learning task, their enhanced enjoyment, interest and sense of achievement in learning when using ICT, and their enhanced self esteem" (Becta, 2004).

Teacher related barrier: Teachers are the principal actors or stakeholders in the learning process. Baylor and Ritchies (2002) who posited that teacher related issues were crucial in determining ICT use in the classroom. Again Gressard and Loyd (1985) asserted that teacher's attitude towards ICT is one of the key factors which determined successful integration while Jegede et al (2007) recognized the teacher as a key instigator in fostering ICT integration in education.

From the above it is clear that the teacher is one key determinant factor among the others factors in the integration of ICT in education. It, therefore, implies from the above that the barriers of integration with relation to teachers can have a negative impact on the whole integration process. The following sessions will look at some of the teacher related challenges or barriers.

Confidence: Numerous studies carried out posit that the lack of confidence prevents teachers from using ICT. According to a BECTA reports in 2004, many teachers who are unskilled in ICT are not prepared to use them in the classroom or in front of students who might probably know more than them. This lack of confidence is further deepened with the expectation of students on the competence of the teacher in the use of ICT. This is so because students are of the view that their teachers know more than them and with this at the back of the mind of the teacher if he/she is even having a fair knowledge about ICT will not be willing to go and disgrace him before the students.

The lack of confidence in the use of ICT is in most instances are accounted for by the inconsistency between training and usage. This is so because most teachers even if they have received training in the use of ICT can still fail to integrate it into teaching. BECTA report 2004 said that the lack

of confidence is linked to other barriers affecting the use of ICT in education. The report mentioned the fear of ICT as a factor that can compromise the level of confidence. Other factors that were mentioned included the lack of technical assistance which can lead to low confidence levels, lack of competence and the quality of training received. According to Jegede et al (2007) as teachers become more appreciative of the use of ICT as a pedagogical aid, attitudes and interest become positive. The rationale, therefore, is that increased interest fosters commitment to hone skills and thereby boosting competence levels.

Beggs (2000) posited that fear of failure is a possible cause of lack of confidence whereas Balanskat et al (2006) said the limitation in the knowledge base of the teacher in ICT use make them feel anxious about using it and thus not confidence to use it in teaching. Some researchers are also of the view that the lack of confidence and experience with the use of technology influences the motivation of teachers in the use 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 that they need to use them more frequently.

From the above it can be concluded that when most of the barriers to the use of ICT in education is removed, many of the problems associated with lack of confidence will be resolved.

Computer fear: Computer anxiety or fear is a key barrier, limiting or preventing the use of ICT by teachers. Underlying these anxieties are a fear of humiliation when using computers and a fear of losing professional status through the downgrading of traditional teaching skills.

According to BECTA (2004) report, teachers who admitted to a lack of confidence ascribe this lack of confidence primarily to fear. According to several reports that some teachers have the fear that computer might challenge or compromise their vocation by downgrading their role. The researcher is of the opinion that if teachers are trained in ICT and ICT integration, they should realize, that rather than downgrading pedagogical skills, ICT aims to enhance those skills, in the same way it aims to enhance the learning process and skills acquisition.

Difficulty in changing teaching method (pedagogy): Teachers have to accept that the widespread use of ICT in schools is having an impact on teaching methods and requires a significant rethinking of approach. Becker (2000) described two main teaching methods and their effects on the ways in which ICT is used in lessons. Traditional transmission institution assumes that students will learn through teacher explanation or reading from texts. Skills are learnt through practicing skill in a sequence prescribed by the teacher. Therefore, one could deduce that using ICT in lessons, the constructivist approach is more likely to lead successful out comes. Furthermore, teachers with the most constructivist philosophies tend to use computers more often and in a more challenging way both in classroom and as users themselves.

Age: It has been observed that age of an individual is a factor in the person's quest to adapt to changes, more especially in the areas of technology. Young (2000) asserted that younger less experienced teachers use computers more because they are more likely to be computer fluent, had more technologically rich teacher training and are less likely to be limited by previous habits, perceptions or attitudes, than older teachers.

Cavas et al (2009) revealed that there is a relationship between teacher's age and their computer attitudes. Another study by Korte and Husing (2007) concluded that younger teachers appear to be less skeptical about the benefits of ICT in learning. Prensky (2001) argued that young people find technologies extremely motivating and that teachers should capitalise on this to foster learning, integrating them into the educational experiences of pupils.

Bradley and Russell (1997 cited in Rodden, 2010) pointed out that, although computer anxiety may increase with age, this does not mean that training or professional development should be specifically targeted at older teachers. They strongly dispute the notion that because computer anxiety may increase with age, younger teachers are unlikely to need training in ICT. Despite this, a substantial body of research literature strongly argues that age has no bearing on the use of ICT by teachers (Al-Senaidi et al. 2009).

Perception of Teachers and Students toward Teaching and learning of ICT

ICT have great potential for knowledge dissemination, effective learning, and the development of more efficient educational services. Moreover, the adoption of ICT by education has been seen as a powerful way to contribute to educational change, better prepare students for the information age, improve learning outcomes and competencies of learners, and equip students with survival skills for the information society. Therefore, teachers are expected to integrate ICT into their teaching and learning processes.

To successfully initiate and implement educational technology in the school program depends strongly on the teachers' support and attitudes. It is believed that if teachers perceived technology programs as neither fulfilling

their own needs nor their students' needs, it is likely that they will not integrate the technology into teaching and learning. Evidence suggests that teachers' attitudes and beliefs influence successful integration of ICT into teaching (Hew & Brush, 2007). If teachers' and students attitudes are positive toward the use of educational technology, then they can easily provide useful insight about the adoption and integration of ICT into teaching and learning processes.

Some researchers studied the relationship between teachers' perceptions of the use of ICT and their actual integration of ICT into teaching and learning processes. Eugene (2006) explored the effect of teachers' beliefs and attitudes towards the use of ICT in classrooms. An observation method was used to collect data on teachers' and students beliefs and attitudes. The study revealed that there was inconsistency between teachers' and students beliefs and their actual use of technology in the classroom. Teachers' beliefs and teaching practices were found not to match. Similarly, Simonson (2004) used a quantitative study to explore the beliefs of primary school teachers and students on the use of ICT in teaching. The result revealed that teachers' beliefs and attitudes were related to their use of technology. Also, Drent and Meelissen (2008) conducted a study about factors which influence the innovative use of ICT by teacher educators in the Netherlands. A sample of 210 teachers was used for the study. Their study revealed that student-oriented pedagogical approach, 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.

Research has shown that teachers' attitudes towards technology influence their acceptance of the usefulness of technology and its integration into teaching (Huang & Liaw, 2005). In EU Schoolnet (2010) survey on teachers' and students use of Acer netbooks involving six European Union countries, a large number of participants believed that the use of netbook had positive impact on their learning, promoted individualized learning and helped to lengthen study beyond school day. However, evidence suggests that small number of teachers believe that the benefits of ICT are not clearly seen. The empirical survey revealed that one fifth of European teachers believed that the use of ICT in teaching did not benefit their students' learning (Korte & Husing, 2007). A survey of UK teachers also revealed that teachers' positivity about the possible contributions of ICT was moderated as they became 'rather more ambivalent and sometimes doubtful' about 'specific, current advantages' (Becta, 2004).

Teachers' and students computer experience relates positively to their computer attitudes. The more experience teachers and students have with computers, the more likely that they will show positive attitudes towards computers (Gardner, 1993). According to Woodrow (1992) for successful transformation in educational practice, user needs to develop positive attitudes toward the innovation.

Further, Teo (2008) conducted a survey on pre-service teachers' and students attitudes towards computer use in Singapore. The focus was on four factors: affect (liking), perceived usefulness, perceived control, and behavioral intention to use the computer. He found that teachers and students were more positive about their attitude towards computers and intention to use computer

than their perceptions of the usefulness of the computer and their control of the computer.

Vision and Policy on ICT Education in Ghana

The government of Ghana has acknowledged the need for ICT training and education in the schools, colleges and universities and the improvement of the education system as a whole. The development of ICT into education will result in the creation of new possibilities for learners and teachers to engage in new ways of information acquisition and analysis. ICT will enhance access to Education and improve the quality of education delivery on equitable basis (The Ghana ICT for Accelerated Development, 2003).

The government is, therefore, committed to a comprehensive program of rapid development and utilization of ICT within the education sector to transform the educational system and thereby improve the lives of our people. It is the government's desire that through the development of ICT, in education, the culture and practice of traditional memory-based learning will be transformed to education that stimulates thinking and creativity necessary to meet the challenges of the twenty first century. Given the magnitude of the task ahead, the government enjoins both the public and private sector to join hands to ensure that our children receive high quality teaching and learning (Ministry of Education& Sports, 2008).

Policy context: The ICT policy statement of the Ministry on ICT is an epitomized version of the ultimate goal to transform the educational system. It is designed to provide a picture guide of the process of the deployment and exploitation of ICT within the framework of the national ICT division.

The Ministry of Education and its agencies such as Ghana Education Service at the Regional and District levels are responsible for the administration and implementation of the provision and the delivery of Education and training at all levels within the education system of Ghana. They also have a responsibility to systematically promote the development of all approved and recognized competing individuals, groups and nations as well as providing realization and pleasure and improve on the health and general well being of Ghanaians.

The “Digital Divide” is essentially the extent of disparity between those that have and those who do not have access to information and associated technologies. It also borders on collective knowledge generation, local content development for a domestic knowledge economy required for promoting online transactional capacity for consumers, business and government sectors. It is expected that an enabling environment needs to be created by government, corporate agencies, civil societies, and individuals to facilitate access and capacity building as well as full exploitation of the potentials of ICT.

The policy document is to provide a policy direction for what needs to be done and how it is intended to be done. It also relates to programs of implementation of the outlined policy actions.

However, the policy document is informed by the following considerations:

- 1 The dawn of information age, characterized by ICT, is making information and knowledge based economies more globally competitive.

2. New areas of comparative advantage, the country must develop, utilize and exploit ICT to bridge the poverty and development gap. This is because poverty is not lack of money in people's pockets but lack of knowledge in educational gap.
3. For the labor market, environment, ICT user and professional skills are required and the education sector which has the responsibility of developing the human resource base for national development is, therefore, obliged to put in place the necessary resource mechanisms to ensure that the human resource outputs of education can be suitably absorbed.
4. ICT will also help Ghana achieve its goals set within the wider developmental objectives as defined by the Ghana Poverty Reduction Strategy, the Education Strategic Plan, Ghana Government white paper on the report of the Education Reform Review Committee, the Science Technology Policy among others.
5. The digital age has brought with it a number of security issues that the policy needs to address.
6. The need to enhance efficiency and effectiveness of the management and administration of education institutions.

After having considered the above factors and many more, the committee which was set up in 2003 to outline an ICT education policy for the country finalized its work and launched the policy in 2007. One can see from the above that the committee was launched in 2003 and finally finished its work in 2007. This delay was due to three (3) main reasons. The first was the complete lack of coordination among the various stake holders and the

ministries. Secondly, the other Ministries were not actively involved in the policy formulation process. Thirdly, there was lack of human resource capacity to devise and implement an appropriate ICT policy for Ghana. The policy which was finally launched as stated above in 2007 through the help of several agencies including Global e-Schools and Communities Initiative (GeSCI), gave the objectives of the policy as:

1. Ensure that students have ICT literacy skills before coming out of each level of Education
2. Provide guidelines for integrating ICT tools in all levels of education
3. Provide means of standardizing ICT resources for all schools
4. Facilitate training of teachers and students in ICT
5. Determine the type and level of ICT needed by schools for teaching and Administration purposes.
6. Promote ICT as a learning tool in the school curriculum at all levels

Vision statement of the policy: Formation of well-balanced individuals with the requisite knowledge, skills, values aptitudes and attitudes to become functional and productive citizens who are adaptable to the demands of a fast changing world driven by modern Science and Technology. These individuals should be capable of using ICT confidently and creatively to achieve personal goals for full participation in the global and knowledge economy.

Mission statement: To provide relevant education to all Ghanaian at all levels to enable them to acquire skills that will assist them to develop their potential to be productive, to facilitate poverty reduction, promote socio-

economic growth and national development and to formulate and implement policies to accelerate development for the welfare of Ghanaians for national interaction and international recognition.

Finally, more coherent national ICT in education policy be provided and that it should be set around identified objectives, priorities and time-frames for ICT utilization in Ghanaian Basic Schools. It is also important that the policy be marketed as much as possible, especially among school administrators.

Summary of Review of Related Literature

The quest for scientific approach to solving problems relating to our daily activities has become more urgent now than ever. It is in this regard, that technology has been identified as a driving force behind most of the sector.

Practically, the view of authorities and people in the field of integrating Information and Communication Technology (ICT), in education, qualification, training and competence of teachers in ICT, access and availability of ICT materials, benefits of ICT use in education, teachers' attitude toward ICT, and policy on ICT education in Ghana were critically examined because they fall into the theoretical discussion of the study.

It came out of the review that the availability of computer equipment, per say, does not in itself guarantees ICT integration in education but successful implementation is a complex process, determined by pedagogical values, attitudes, curricular needs and physical infrastructures.

The review is certain on the benefits of Information and Communication Technology. It was highlighted that ICT in education makes access to various learning resources instant and convenient to both teachers

and students. It was stressed in the review that despite the varied benefits and applications of ICT, the benefits are realised only when one is educated in the used of the technology.

The review also confirmed that there are a number of barriers or challenges that inhibit the use of ICT in education. These barriers included an inconsistent number of computers to students, a deficit in maintenance and technical assistance, and a lack of computer skills and/or knowledge among teachers.

Finally, the review was explicit on the national policy, which sought to inform stakeholders of education as to why ICT is an important part of modern society and the role it plays in education sector to ensure manpower development for the remaining sectors. It also disclosed that to achieve the goals of the national ICT policy, it was necessary to look at the tools and materials required for teaching and learning. It came out from the review that functional, reliable and properly maintained ICT tools and materials is a significant factors in the sustainability and continuity of ICT programs.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter talks about the methodology that was employed in the study. It is made up of the research design, the target population, and the sampling technique(s) that was employed. The chapter also talked about the sample that was used in the study, the data collection method that was employed, and the instrument that was used in data collection. The chapter also looks at how the data collected was analyzed.

Research Design

Considering the nature of the research problem and purpose of this study, the most appropriate research methodology that was used is the descriptive survey design.

Generally, descriptive study according to Busha and Harter (1980) is capable of collecting background information and hard – to – find data and the researcher would not have the opportunity to motivate or influence respondents' responses. Sproull (1995) recommends the survey technique for research where attitudes, ideas, comments and public opinion on a problem or issue are studied. Descriptive survey describes data and characteristics about a population or phenomenon. It also provides simple summaries about the sample and observations made. Moreover, it is factual and accurate making use of frequency and averages. In addition, it is used to find “what is.

However, description survey does not answer questions about how, when and why the characteristic occurred. It also does not provide information on what caused the situation. In two or more variables, correlation is shown.

Population

The study covered Komenda-Edina-Eguafo-Abrem Municipality. The target population for the study is 2464 basic school teachers in Komenda-Edina-Eguafo-Abrem Municipality. The assessable population is 285 public basic School teachers in Elmina Circuit in Komenda Edina Eguafo Abrem Municipality.

Sample and Sampling Technique

The research adopted the stratified random sampling approach which involves dividing the population into a number of homogeneous groups and selecting randomly. Here, two levels of grouping are involved.

First was grouping the population into schools, followed by random selection of representative schools. In this case, six out of twelve public schools in Elmina circuit were randomly selected by ballot. These comprised Elmina Methodist 'B' Primary and Junior High School, Dr. R. P Baffour Anglican Primary and Junior High School, Bantuma Akyinim MA Primary and Junior high School, Sharrif Islamic Primary and junior High School, Elmina M/A Primary and Junior High School and Elmina Catholic Girls Primary and Junior High School.

Secondly, teachers in each of the six selected schools in Elmina circuit were grouped into Primary school teachers and Junior high school teachers. Thereafter, five primary school teachers and five junior high school teachers in each school were randomly selected by ballot. Therefore, a total of sixty basic school teachers were sampled. That is ten teachers from each of the six selected schools comprising equal number of primary and junior high school teachers.

Research Instruments

In an attempt to collect relevant data in connection with the research topic, a questionnaire was designed to be responded by teachers. The questionnaire was divided into five parts: A, B, C, D and E. Part A gather data on the background of respondents, Part B gathered information about qualification and training teachers had in ICT, Part C gathered information about access and availability of ICT resources in their schools, Part D also gathered information about how often teachers use IT in teaching and the Part E gathered information on attitude of teachers towards the use of IT tools in teaching.

The questionnaire comprised mainly pre-coded questions. In the pre-coded likert-type items, the respondents were provided with a number of options to choose from. Respondents were to tick the appropriate answers to express their opinions.

Data Collection Procedure

Data on challenges the basic school teachers face in teaching Information Communication Technology as a subject were collected during the 2014/2015 academic year. Permission was sought from head teachers of schools sampled for the study. A copy of each of questionnaires was given to teachers sampled for the study individually. The respondents were assured that all responses would be strictly treated as confidential.

Data Analysis Procedure

The answered questionnaires were grouped according to the categories of respondents. Questionnaires for each category of respondents were numbered serially to ensure easy coding, checked for blank options and out of

range responses. The coded responses were fed into Statistical Product for Service Solution (SPSS version 17) software for Windows. The data then was summarized into tables, and figures using descriptive statistics. Specifically, the study used frequencies and percentages.



CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter provides the overview of the methodology and presents the results of the study research question by research question.

Overview of Methodology

The purpose of this study was to find out the challenges that face Teachers in teaching ICT in Basic Schools.

A descriptive design was used to determine and report the findings of the study. This involved collecting data in order to answer the research questions. The study covered six Basic Schools in Elmina circuit and questionnaires administered to sixty (60) individuals. A total of fifty-eight (58) questionnaires were retrieved. This represents a total response rate of 96.7%.

Questionnaires were the main instrument used in the collection of data for the study. All the questionnaires were administered personally by the researcher. Data collected was analyzed using frequencies and percentages.

Presentation of Results

In this section, the presentation of the result is done answering research questions one after the other.

Demographic Characteristics and Background Information

The respondents' background information are presented on table one to table5.

Table 1: Gender of Respondents

Sex	Frequency	%
Non-Respond	2	3.5
Male	26	44.8
Female	30	51.7
Total	58	100.0

Source: Field data, June 2015

The table above shows that as many as 26 (44.8%) of the respondents were males while the remaining 30 (51.7%) were females. From the above it can be concluded that majority of the teachers used in the study were females

Table 2: Ages of Respondents

Age	Frequency	%
Below 30	20	23.5
30-39	24	41.4
40-49	12	20.7
50 and above	2	3.4
Total	58	100.0

Source: Field data, June 2015

Table 2 which shows the age distribution of the respondents indicates that 20 (23.5%) of them fell under the thirty and below (30) age bracket. 24 (41.4%) and 12 (20.7%) fell in the 30-39 and 40-49 age brackets. 2 (3.4%) fell in the 50 and above age brackets. Respondents were then asked of the highest educational level that they have attained. Their response is presented in table 3.

Table 3: Highest Level of Education Attained

Response	Frequency	Percent
Teachers Cert	2	3.4
Diploma	29	50.0
1st Degree	24	41.4
Masters	3	5.2
Total	58	100.0

Source: Field data, June 2015

Table 3 shows that 2(3.4%) and 29(50.0%) of the respondents had a Teachers certificate and a Diploma certificate as their highest level of education. As many as 24(41.4%) had a first degree with the remaining 3(5.2%) having a master's degree. A deduction from the above is that majority of the respondents are Diploma and 1st Degree certificate holders.

Table 4: Teaching Experience

Response	Frequency	%
0 – 9 years	30	51.7
10-15 years	18	31.0
16 – 19 years	4	6.9
20 and above years	6	10.3
Total	58	100.0

Source: Field data, June 2015

Table 4 indicates that 30 (51.7%) and 18 (31.0%) of the respondents have spent less than ten (10) years and 10 – 15 years respectively in teaching. 4 (6.9%) and 6 (10.3%) of the respondents have respectively spent 16 – 19 years and 20 years and above in teaching.

An inference from the Table 4 above is that majority of the respondents have spent less than 16 above years as teachers. Therefore, they are out of training colleges less than 16 years and must be abreast with modern methods of teaching using IT.

Table 5: Owning of Personal Computer

Response	Frequency	Percent
Yes	38	65.5
No	20	34.5
Total	58	100.0

Source: Field data, June 2015

Table 5 Indicates that 38 (65.5%) of the respondents have personal computers while the remaining 20 (34.5%) do not have personal computers, this can affect their teaching of ICT in the various case study schools.

Analysis of Main Data

Research question 1: What facilities and equipment are available for the integration of ICT in education in Basic Schools in Komenda Edina Eguafo Abrem Municipality?

In trying to address the research question 1, the respondents' response is presented in table 6.

Table 6: Availability and Access of ICT Resource

Statement	Response			
	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)
Computer laboratory	8(13.8)	6 (10.3)	14(24.1)	30(51.7)
Computers in the library	9(15.5)	7(12.1)	14(24.1)	27(46.6)
Internet connectivity	8(13.8)	10(17.2)	8(13.8)	32(55.2)
Projector, audio and video equipment	3(5.2)	9(15.5)	8(13.8)	36(62.1)
Computer in the staff common room	5(8.6)	8(13.8)	10(17.2)	33(56.9)
External hard drive	1(1.7)	7(12.1)	8(13.8)	40(69.0)
Connected to electricity	19(32.8)	2(3.4)	31(53.4)	5(8.6)

1-Accessible 2-Not accessible 3-Available 4-Not Available

Source: Field data, June 2015

Table 6 shows that 8(13.6%) and 14(24.1%) of the respondents confirm the availability of a computer laboratory and is accessible.

The table further shows that 7 of the respondents representing 12.1% stated that there is computer in the library while 27(46.6%) of the respondents say their do not have computer in the library.

The data also reveals that 8(13.8%) and 32(55.2%) of the respondents state there is internet connectivity available and not available. A deduction from the above is that majority of the respondents state that the facilities are not available in their various schools. This is not in line with Obeng (2004) that many educational ministries around the world have made the commitment to computerize schools by providing additional facilities like computer laboratories, wireless internet connection and local area network to assist teachers in their professional tasks.

Most of the respondents 9(15.5%) and 36(62%) state that projector, audio and video equipment are not accessible and not available in their respective schools.

In connection with the connection of electricity, 19(32.8%) and 31 (53.4%) respectively agree electricity is accessible and available. This reveals that most schools have electricity connection which will help in the operating of ICT tools if they are available. From the above, it is evidently clear that all the schools used in the study do not have enough computers for studies.

The personal observation at all schools revealed that even those schools that have computers, most of the computers in the schools laboratories were really old and some of the computers had also broken down. This is the

reason why government of Ghana has collaboration with rlg Company to give ICT tools to school (Tettey-Enyo, 2009).

Research question 2: Do the teachers have the requisite training and qualification in the use of ICT to teach?

In trying to answer the research question above, the respondents were asked whether they have received any training in specific areas of ICT before joining the teaching profession. This is to say that whether the respondents have received any training in the use of ICTs during their formative days at their various training institutions. Their response is presented in table 7

Table 7: Qualification and Training of Teachers in ICT

Statement	Response			
	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)
Word processing and spread sheet	8(13.8)	6 (10.3)	14(24.1)	30(51.7)
How to set up a multimedia projector, video, audio equipment	9(15.5)	7(12.1)	14(24.1)	27(46.6)
PowerPoint Presentation	8(13.8)	10(17.2)	8(13.8)	32(55.2)
How to use internet for instructional purposes	3(5.2)	9(15.5)	8(13.8)	36(62.1)

1-highly trained 2-Partiallytrained 3-No training 4-I need training

Source: Field data, June 2015

Table 7 shows that 8 of the respondents representing 13.8% agree that they are highly trained in word processing and spread sheet and 6(10.3%) of them also agree that they are partially trained in word processing and spread

sheet. This supports Pelgrum's study that there were not enough training opportunities for teachers in the use of ICT in the classroom.

The table further shows that 14(24.1%) and 30(51.7%) which representing majority of the respondents respectively agree that they have no training and need training in word processing and spread sheet.

Table 7 also shows that 14(24.1%) and 27(46.6%) of the respondents respectively state that they have no training and need training on how to set up a multimedia projector, video, and audio equipment.

The table further shows that 8(13.8%) and 10(17.2%) of the respondents respectively agree that they are highly and partially train to handle PowerPoint presentation and this represent minority of the respondents.

Furthermore, Table 7 reveals that 8(13.8%) and 36(62.1%) of the respondents respectively agree that they have no training and need training on how to use internet for instructional purposes. The table further reveals that 5.2% and 15.5% of the respondents respectively have highly and partially training on how to use internet for instructional purposes.

A deduction from the above is that a vast majority of the respondents did not receive training during their formative days and, as a result, cannot effectively integrate ICT in their teaching. Bingimlas (2009) also reported that lack of knowledge or competence is regarded as a significant teacher-related barrier to ICT integration. Pelgrum (2001) submitted that lack of knowledge or competence in technology, among teachers and administrators in developing nations, is the primary obstacle to the uptake of ICT in education.

Research question 3: What are the attitudes of teachers toward the use of computers in teaching?

In answering the research question above, the respondents were asked questions that will determine what attitude teachers have towards the use of computers in teaching. This is to say that whether the respondents have positive or negative attitudes towards the use of IT in their teaching processes. Their response is presented in table 8 and 9.

Table 8: IT tools are Difficult to use

Response	Frequency	Percent
Strongly agree	7	12.1
Agree	11	19.0
Disagree	26	44.8
Strongly Disagree	14	24.1
Total	58	100.0

Source: Field data, June 2015

Table 10 shows that 26(44.8%) and 14(24.1%) of the respondents respectively disagreed and strongly disagreed to the assertion that IT tools are difficult to use. Conversely, 11(19.0%) and 7(12.1%) respectively agreed and strongly agreed that IT tools are difficult to use.

From the above it can be concluded that majority of the respondents were not convinced that IT tools are difficult to use and this means positive attitude towards the use of ICT tools. Gressard and Loyd (1985) asserted that teacher's attitude towards ICT is one of the key factors which determined successful integration

Table 9: I use computer drill, games, animation and tutorials for teaching

Response	Frequency	Percent
Strongly agree	6	10.3
Agree	15	25.9
Disagree	15	25.9
Strongly Disagree	22	37.9
Total	58	100.0

Source: Field data, June 2015

Table 9 shows that 15(25.9%) and 22(37.9%) of the respondents respectively disagreed and strongly disagreed that they use computer drill, games, animation and tutorials for teaching, with 6(10.3%) strongly agreeing and the remaining 15(25.9%) agreed that they use computer drill, games, animation and tutorials for teaching. From the above it can be concluded that majority of the respondents have negative attitude towards use IT methods in teaching that do not go in line with Jegede et al (2007) that teachers become more appreciative of the use of ICT as a pedagogical aid, attitudes and interest become positive.

Research question 4: What perceptions do teachers in the Basic Schools have in relation to the use of ICT in the classroom?

In trying to answer research question four, questions were presented to the respondents to answer. Their responds are presented on the table 10 and 11.

Table 10: The Use of IT in Teaching is Waste of Time

Response	Frequency	Percent
Strongly Agree	1	1.7
Agree	1	1.7
Disagree	17	29.3
Strongly Disagree	38	65.5
Total	47	98.2

Source: Field data, June 2015

Table 10 shows that 1(1.7%) and 1(1.7%) of the respondents respectively strongly agree and agree to the assertion that the use of IT in teaching is waste of time, with 17(29.3%) disagreeing. The remaining 38(65.5%) strongly agreed. From the above it can be concluded that majority of the respondents were not convinced that use of IT in teaching is waste of time.

Table 11: ICT motivates student in teaching and learning processes

Response	Frequency	Percent
Strongly Agree	23	39.7
Agree	29	50.0
Disagree	0	0
Strongly Disagree	4	6.9
Total	46	96.6

Source: Field data, June 2015

Table 11 shows that 23(39.7%) and 29(50.0%) of the respondents respectively strongly agree and agree that ICT motivates students in teaching and learning processes. Prensky (2001) argued that young people find mobile

technologies extremely motivating and that teachers should capitalize on this to foster learning, integrating them into the educational experiences of pupils.

The table further shows that 0(0%) and 4(6.9%) of the respondents respectively disagree and strongly disagree that ICT motivates students in teaching and learning processes.

A deduction from the above is that a vast majority of the respondents do have positive perception in relation to the use of ICT in the classroom.



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents the summary of findings of the study, conclusions drawn from the findings and recommendations for improving the challenges that face teachers in providing quality ICT education in basic schools.

Summary of Findings

The purpose of this study was to find out the challenges that face teachers in teaching of ICT in basic school.

A descriptive design was used to determine and report the findings of the study. This involved collecting data in order to answer the research questions. The study covered six out of twelve public schools in Elmina circuit, comprised of Elmina Methodist 'B' Primary and Junior High School, Dr. R. P Baffour Anglican Primary and Junior High School, Bantuma Akyinim MA Primary and Junior high School, Sharrif Islamic Primary and junior High School, Elmina M/A Primary and Junior High School and Elmina Catholic Girls Primary and Junior High School.

The population for the study was all the basic school teachers in Komenda-Edina-Eguafo-Abrem Municipality. In all, 58 basic school teachers were involved in the study. Questionnaires were the main instrument used in the collection of data for the study. All the questionnaires were administered personally. Data collected was analyzed using frequencies and percentages.

The result of the study showed that there were only few ICT tools and equipment for teaching and learning the schools and most the computers in the schools' laboratories have broken down because no fund for repairing them.

It is also an evident from the study that, most teachers do not have adequate skills to integrate ICT in their teaching and learning processes. It also indicated that most teachers do not have good attitudes towards the use of ICT in the teaching and learning processes and this may be because most teachers do not have requisite skills in handling IT tools and equipment. Moreover, the study shows that majority of the respondents have positive perception in relation to the use of ICT in the classroom

Conclusion

The followings conclusions were drawn based on the objectives that were set;

Firstly with respect to the factors that were inhibiting the integration of the use of ICTs in the classrooms, it was found out that although there were more factors, four (4) major ones were identified. These factors are no or inadequate ICT tools and equipment necessary for practical lessons, lack of training, lack of knowledge about computers and the lack of previous or no experience in the use of computers. Other factors that also dominated the responses of respondents were lack of knowledge of the use of computers or lack of training and finally the lack of confidence.

With regard to whether the teachers have gotten enough training and qualification in the use of ICTs, it can be concluded that majority of them do have the requisite training and knowledge in the use of ICTs.

Finally, on the assessment of the extent of availability of ICTs equipment such as computers in the various schools, it can be concluded that most of the schools do not have enough computers to be used by the students. Secondly it can also be concluded that all the schools do not have well equipped laboratories that befit the schools.

Recommendations

It is recommended that ICT infrastructures should be provided to the basic schools for effective teaching and learning process since it is the basic stage of equipping the youth with the necessary skills and knowledge for national development.

Teachers should be given the necessary training in ICT usage so that they become familiar with modern pedagogy of imparting knowledge and skills, and possible become part of curriculum structure for their professional training.

Again, modern ICT laboratories should be built for our basic schools to accommodate enough students at time looking at their population size for effective and efficient teaching and learning environment.

Suggestions for Further Research

A related study could be done to find out the challenges that militate against the immediate integration of ICT in the teaching and learning in Basic Schools in the country.

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APPENDICE A

QUESTIONNAIRE

UNIVERSITY OF CAPE COAST

COLLEGE OF DISTANCE EDUCATION

This questionnaire is designed to gather data about the challenges that face teachers teaching Information and Communication Technology as a subject in Basic Schools. Your cooperation will be appreciated. There is no wrong or right answer and any information you provide is purely for academic purpose and we therefore assure you of total confidentiality and anonymity.

The questionnaire is divided into five parts; A, B, C, D, and E. Part A center on actual information about your background and require you to tick (✓) the appropriate choice. Parts 'B' to 'E' seek your opinions, perceptions, skills, facts and constraints based on your experience. Kindly express your candid opinion. Thank you

PART A

Background Information of Respondent

1. Name of school.....
2. Age: Below 30 [] 30 – 39 [] 40-50 [] 51 and Above [
3. Gender: Male [] Female [
4. Highest educational level attained
SSCE [] Teacher Cert. [] Diploma [] 1st Degree [] Masters [
5. How long have you been teaching?

17	PowerPoint Presentation				
18	How to use internet for instructional purposes				
No.	Statement	1	2	3	4
19	Programming Instructions				

PART C

Access and Availability of ICT Resource

Read each statement carefully and rate by ticking (√) the appropriate space in the table below. You are to confirm the statement with regard to the availability or accessibility of the facility in your school. Use the key provided.

Key: *1-Accessible 2-Not accessible 3-Available 4-Not Available*

No.	Statement	Rate			
		1	2	3	4
20	Computer laboratory				
21	Computers in the library				
22	Internet connectivity				
23	Projector, audio and video equipment				
24	Computer in the staff common room				
25	External hard drive				
26	Connected to electricity				

PART D

Uses of IT in Teaching

Read each statement carefully and rate by ticking (√) the appropriate space in the table below, the level of ICT usage you can exhibit. Use the key provided.

Key: *1-Always* *2-Sometimes* *3-Very Little* *4-Never*

No.	Statement	Rate			
		1	2	3	4
27	Word processing packages				
28	Presentation software				
29	Graphical calculation				
30	Internet for instructional purposes				
31	Spread sheet				
32	Use of E-mail				
33	Application of multimedia				
34	Graphical applications				

PART E

Attitude towards the use of IT Tools

Read each statement carefully and rate by ticking (√) the appropriate space in the table below, the level of agreement or disagreement with the statement.

Use the key provided.

Key: *1-Strongly agree* *2-Agree* *3-Disagree* *4-Strongly disagree*

No.	Statement	Rate			
		1	2	3	4
35	I have adequate time to plan for technology use in my class				
36	IT tools are difficult to use				
37	I always use good quality software available in teaching				
38	ICT is something I rarely use in my teaching				
39	I use computer drill, games, animation and tutorials for teaching				
40	The use of IT in teaching is waste of time				
41	IT makes teaching and learning very easy				
42	ICT is for gifted teachers to use in teaching				
43	ICT should be a standalone subject and not used in other classes				
44	I use IT tools to process and keep records on students				
45	Computer equipment is unreliable				

46	ICT motivates students in teaching and learning processes				
47	Not sure how useful computers				
48	I use applications such as word processing, spreadsheets, and the internet in my teaching				
49	IT tools always distract my class				
50	I have never used a computer but would like to learn				
51	Only inactive teachers use IT methods in their teaching				
52	I always have In-service Training in ICT integration knowledge acquisition				
No.	Statement	1	2	3	4
53	ICT is for young teachers				
54	I give assignment to student on internet				
55	Using IT in teaching and learning processes is waste of time and money				

APPENDICE B

SPSS ANALYSIS OF DATA

Frequency Tables

age

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below 30	20	34.5	34.5	34.5
30-39	24	41.4	41.4	75.9
40-50	12	20.7	20.7	96.6
51 and above	2	3.4	3.4	100.0
Total	58	100.0	100.0	

gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
male	26	44.8	44.8	48.3
Female	30	51.7	51.7	100.0
Total	58	100.0	100.0	

highest education level attained

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Teacher Cert	2	3.4	3.4	3.4
Diploma	29	50.0	50.0	53.4
1st Degree	24	41.4	41.4	94.8
masters	3	5.2	5.2	100.0
Total	58	100.0	100.0	



how long have you been teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0-9yrs	30	51.7	51.7	51.7
10-15yrs	18	31.0	31.0	82.8
16-19yrs	4	6.9	6.9	89.7
20 and above	6	10.3	10.3	100.0
Total	58	100.0	100.0	

do you have personal computer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	38	65.5	65.5	65.5
	No	20	34.5	34.5	100.0
	Total	58	100.0	100.0	

do you have internet connection at home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non-respond	2	3.4	3.4	3.4
	Yes	27	46.6	46.6	50.0
	No	29	50.0	50.0	100.0
	Total	58	100.0	100.0	

does your school have computers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	48	82.8	82.8	82.8
	No	10	17.2	17.2	100.0
	Total	58	100.0	100.0	

does your school have internet connection

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Yes	14	24.1	24.1	27.6
No	42	72.4	72.4	100.0
Total	58	100.0	100.0	

daily computer usage

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No useage	20	34.5	34.5	34.5
less than one hour	17	29.3	29.3	63.8
1-4 hours	14	24.1	24.1	87.9
More than 5hours	7	12.1	12.1	100.0
Total	58	100.0	100.0	

NOBIS

word processing and spread sheet

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Highly trained	6	10.3	10.3	10.3
Partially trained	30	51.7	51.7	62.1
No training	9	15.5	15.5	77.6
i Need training	13	22.4	22.4	100.0
Total	58	100.0	100.0	

instructional software

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Highly trained	8	13.8	13.8	13.8
Partially trained	19	32.8	32.8	46.6
No training	17	29.3	29.3	75.9
i Need training	14	24.1	24.1	100.0
Total	58	100.0	100.0	

how to set up a multimedia projector, video, audio equipment

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Highly trained	6	10.3	10.3	10.3
Partially trained	20	34.5	34.5	44.8
No training	10	17.2	17.2	62.1
i Need training	22	37.9	37.9	100.0
Total	58	100.0	100.0	

knowledge on operating maintaining computer system

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Highly trained	9	15.5	15.5	17.2
Partially trained	23	39.7	39.7	56.9
No training	7	12.1	12.1	69.0
i Need training	18	31.0	31.0	100.0
Total	58	100.0	100.0	

database

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Highly trained	7	12.1	12.1	12.1
Partially trained	20	34.5	34.5	46.6
No training	12	20.7	20.7	67.2
i Need training	19	32.8	32.8	100.0
Total	58	100.0	100.0	

PowerPoint presentation

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Highly trained	10	17.2	17.2	17.2
Partially trained	23	39.7	39.7	56.9
No training	10	17.2	17.2	74.1
i Need training	15	25.9	25.9	100.0
Total	58	100.0	100.0	

how to use internet for instuctional purposes

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Highly trained	15	25.9	25.9	29.3
Partially trained	22	37.9	37.9	67.2
No training	6	10.3	10.3	77.6
i Need training	13	22.4	22.4	100.0
Total	58	100.0	100.0	



programming instructions

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Highly trained	7	12.1	12.1	12.1
Partially trained	17	29.3	29.3	41.4
No training	13	22.4	22.4	63.8
i Need training	21	36.2	36.2	100.0
Total	58	100.0	100.0	

computer laboratory

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Accessible	8	13.8	13.8	13.8
Not accessible	6	10.3	10.3	24.1
Available	14	24.1	24.1	48.3
Not available	30	51.7	51.7	100.0
Total	58	100.0	100.0	



computers in the library

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Accessible	9	15.5	15.5	17.2
Not accessible	7	12.1	12.1	29.3
Available	14	24.1	24.1	53.4
Not available	27	46.6	46.6	100.0
Total	58	100.0	100.0	

internet connectivity

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Accessible	8	13.8	13.8	13.8
Not accessible	10	17.2	17.2	31.0
Available	8	13.8	13.8	44.8
Not available	32	55.2	55.2	100.0
Total	58	100.0	100.0	



projector, audio and video equipment

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Accessible	3	5.2	5.2	8.6
Not accessible	9	15.5	15.5	24.1
Available	8	13.8	13.8	37.9
Not available	36	62.1	62.1	100.0
Total	58	100.0	100.0	

computer in the staff common room

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Accessible	5	8.6	8.6	12.1
Not accessible	8	13.8	13.8	25.9
Available	10	17.2	17.2	43.1
Not available	33	56.9	56.9	100.0
Total	58	100.0	100.0	



external hard drive

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Accessible	1	1.7	1.7	5.2
Not accessible	7	12.1	12.1	17.2
Available	8	13.8	13.8	31.0
Not available	40	69.0	69.0	100.0
Total	58	100.0	100.0	

connected to electricity

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Accessible	19	32.8	32.8	34.5
Not accessible	2	3.4	3.4	37.9
Available	31	53.4	53.4	91.4
Not available	5	8.6	8.6	100.0
Total	58	100.0	100.0	

word processing packages

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Always	12	20.7	20.7	20.7
Sometimes	17	29.3	29.3	50.0
Very little	8	13.8	13.8	63.8
Never	21	36.2	36.2	100.0
Total	58	100.0	100.0	

presentation software

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Always	5	8.6	8.6	10.3
Sometimes	14	24.1	24.1	34.5
Very little	17	29.3	29.3	63.8
Never	21	36.2	36.2	100.0
Total	58	100.0	100.0	

graphical calculation

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Always	6	10.3	10.3	13.8
Sometimes	8	13.8	13.8	27.6
Very little	15	25.9	25.9	53.4
Never	27	46.6	46.6	100.0
Total	58	100.0	100.0	

internet for instructional purposes

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Always	7	12.1	12.1	15.5
Sometimes	17	29.3	29.3	44.8
Very little	12	20.7	20.7	65.5
Never	20	34.5	34.5	100.0
Total	58	100.0	100.0	



spread sheet

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	4	6.9	6.9	6.9
Always	4	6.9	6.9	13.8
Sometimes	14	24.1	24.1	37.9
Very little	12	20.7	20.7	58.6
Never	24	41.4	41.4	100.0
Total	58	100.0	100.0	

use of E-mail

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	14	24.1	24.1	24.1
	Sometimes	13	22.4	22.4	46.6
	Very little	16	27.6	27.6	74.1
	Never	15	25.9	25.9	100.0
	Total	58	100.0	100.0	

application of multimedia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non-respond	1	1.7	1.7	1.7
	Always	10	17.2	17.2	19.0
	Sometimes	13	22.4	22.4	41.4
	Very little	16	27.6	27.6	69.0
	Never	18	31.0	31.0	100.0
	Total	58	100.0	100.0	

graphical applications

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	4	6.9	6.9	6.9
Always	3	5.2	5.2	12.1
Sometimes	13	22.4	22.4	34.5
Very little	16	27.6	27.6	62.1
Never	22	37.9	37.9	100.0
Total	58	100.0	100.0	

i have adequate time to plan for technology use in my class

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agree	7	12.1	12.1	12.1
Agree	24	41.4	41.4	53.4
Disagree	21	36.2	36.2	89.7
Strongly disagree	6	10.3	10.3	100.0
Total	58	100.0	100.0	

IT tools are difficult to use

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agree	7	12.1	12.1	12.1
Agree	11	19.0	19.0	31.0
Disagree	26	44.8	44.8	75.9
Strongly disagree	14	24.1	24.1	100.0
Total	58	100.0	100.0	

i always use good quality software available in teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Strongly agree	5	8.6	8.6	10.3
Agree	25	43.1	43.1	53.4
Disagree	16	27.6	27.6	81.0
Strongly disagree	11	19.0	19.0	100.0
Total	58	100.0	100.0	

ICT is something i rarely use in my teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agree	10	17.2	17.2	17.2
Agree	16	27.6	27.6	44.8
Disagree	23	39.7	39.7	84.5
Strongly disagree	9	15.5	15.5	100.0
Total	58	100.0	100.0	

i use computer drill,games,animation and tutorials for teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agree	6	10.3	10.3	10.3
Agree	15	25.9	25.9	36.2
Disagree	15	25.9	25.9	62.1
Strongly disagree	22	37.9	37.9	100.0
Total	58	100.0	100.0	

the use of IT in teaching is waste of time

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Strongly agree	1	1.7	1.7	3.4
Agree	1	1.7	1.7	5.2
Disagree	17	29.3	29.3	34.5
Strongly disagree	38	65.5	65.5	100.0
Total	58	100.0	100.0	



IT makes teaching and learning very easy

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Strongly agree	30	51.7	51.7	55.2
Agree	24	41.4	41.4	96.6
Disagree	1	1.7	1.7	98.3
Strongly disagree	1	1.7	1.7	100.0
Total	58	100.0	100.0	

ICT is for gifted teachers to use in teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Strongly agree	4	6.9	6.9	10.3
Agree	1	1.7	1.7	12.1
Disagree	11	19.0	19.0	31.0
Strongly disagree	40	69.0	69.0	100.0
Total	58	100.0	100.0	

ICT should be standalone subject and not used in other classes

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Strongly agree	2	3.4	3.4	6.9
Agree	7	12.1	12.1	19.0
Disagree	14	24.1	24.1	43.1
Strongly disagree	33	56.9	56.9	100.0
Total	58	100.0	100.0	

i use IT tools to process and keep records on students

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Strongly agree	5	8.6	8.6	10.3
Agree	22	37.9	37.9	48.3
Disagree	15	25.9	25.9	74.1
Strongly disagree	15	25.9	25.9	100.0
Total	58	100.0	100.0	

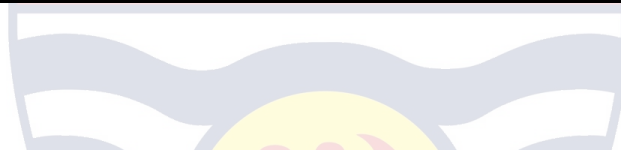


computer equipment is unreliable

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Strongly agree	5	8.6	8.6	10.3
Agree	6	10.3	10.3	20.7
Disagree	17	29.3	29.3	50.0
Strongly disagree	29	50.0	50.0	100.0
Total	58	100.0	100.0	

ICT motivates student in teaching and learning proseses

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Strongly agree	23	39.7	39.7	43.1
Agree	29	50.0	50.0	93.1
Strongly disagree	4	6.9	6.9	100.0
Total	58	100.0	100.0	



not sure how useful computers

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	4	6.9	6.9	6.9
Disagree	16	27.6	27.6	34.5
Strongly disagree	38	65.5	65.5	100.0
Total	58	100.0	100.0	

i use applications such as word processing,spreadsheets and the internet in my teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Strongly agree	8	13.8	13.8	17.2
Agree	14	24.1	24.1	41.4
Disagree	15	25.9	25.9	67.2
Strongly disagree	19	32.8	32.8	100.0
Total	58	100.0	100.0	

IT tools always distract my class

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Strongly agree	1	1.7	1.7	3.4
Agree	10	17.2	17.2	20.7
Disagree	14	24.1	24.1	44.8
Strongly disagree	32	55.2	55.2	100.0
Total	58	100.0	100.0	

i have never used a computer but would like to learn

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Strongly agree	6	10.3	10.3	12.1
Agree	9	15.5	15.5	27.6
Disagree	13	22.4	22.4	50.0
Strongly disagree	29	50.0	50.0	100.0
Total	58	100.0	100.0	

only inactive teachers use IT methods in their teaching

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Strongly agree	3	5.2	5.2	8.6
Agree	1	1.7	1.7	10.3
Disagree	11	19.0	19.0	29.3
Strongly disagree	41	70.7	70.7	100.0
Total	58	100.0	100.0	

i always have in-service training in ICT integration knowledge acquisition

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Strongly agree	6	10.3	10.3	12.1
Agree	12	20.7	20.7	32.8
Disagree	16	27.6	27.6	60.3
Strongly disagree	23	39.7	39.7	100.0
Total	58	100.0	100.0	



ICT is for young teachers

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	2	3.4	3.4	3.4
Strongly agree	3	5.2	5.2	8.6
Disagree	10	17.2	17.2	25.9
Strongly disagree	43	74.1	74.1	100.0
Total	58	100.0	100.0	

i give assignment to student on internet

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Strongly agree	6	10.3	10.3	12.1
Agree	10	17.2	17.2	29.3
Disagree	14	24.1	24.1	53.4
Strongly disagree	27	46.6	46.6	100.0
Total	58	100.0	100.0	

Using IT in teaching and learning processes is waste of time and mone

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-respond	1	1.7	1.7	1.7
Strongly agree	4	6.9	6.9	8.6
Agree	1	1.7	1.7	10.3
Disagree	12	20.7	20.7	31.0
Strongly disagree	40	69.0	69.0	100.0
Total	58	100.0	100.0	