

UNIVERSITY OF CAPE COAST

**HISTORY TEACHERS' PERCEPTION OF ICT IN PROMOTING
TEACHING AND LEARNING**

JONATHAN AMENGOR

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AND LEARNING

BY

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Education, University of Cape Coast, in partial fulfilment of the requirements for
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DECLARATION

Candidate's Declaration

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

Candidate's Signature: Date:

Name: Jonathan Amengor

Supervisor's Declaration

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

Supervisor's Signature: Date:

Name: Mr. Paul Ahiatrogah

ABSTRACT

Ghana, through her I.C.T. for Accelerated Development (ICT4AD) policy, has provided a number of ICT equipments to some schools in order to promote the integration of ICT into the teaching and learning process. This research study sheds light on Historyteachers' perception and use of ICT tools in Senior High schools, by considering various variables which affect the success of the implementation of these tools. A questionnaire was completed by 67 History teachers who teach in Senior High Schools in both Kumasi and Cape Coast metropolis. Two hypotheses were formulated and tested at 0.5 significance level using SPSS version 16.

The results showed that although History teachers are willing to use ICT resources and are aware of the existing potentials, they are facing problems in relation to accessibility to ICT resources and lack of in-service training opportunities. The hypothesis tested proved that there was no statistically significant difference between males and females history teachers perception of ICT. It further showed that there was no statistically significant difference between those who have their personal computer and those who lack it.

It is recommended that the government, through the Ministry of Education, provides schools and teachers with computers and other ICT infrastructure. Again, training opportunities should be made available for History teachers to familiarize themselves with skills of integrating ICT into their professional task.

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DEDICATION

To my enlightened illiterate parents, AmengorKwabena, Samuel andHomeku,
Ama Mercywho showed me the light to literacy.

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CHAPTER ONE

INTRODUCTION

Background to the Study

Information and communication technology (ICT) has become, within a very short time, one of the basic building blocks of modern society. Many countries now regard the mastering of the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy. At every level of education, ICT is perceived as a vehicle for curriculum enhancement. ICT, according to UNDP (2006) report, has been defined to include the full range of electronic technologies and techniques to manage information and knowledge. It is about computer-based technology including computer hardware, software, CD-Rom, videodisc player and the internet. These forms of technology provide teachers and students with vast quantities of information in an easily accessible, non-sequential format that can be used as teaching tools.

Studies including Hadley and Sheingold (1992) and Hannafin and Saverie (1993) have indicated that ICT has the potential for enhancing student learning. On the part of teachers, they use ICT particularly, computers to write lesson plans, prepare materials for teaching, record and calculate student grades, and communicate with students and other teachers. As such, “computers have become

a routine tool for helping teachers accomplish their professional work” (Becker, Ravitz, & Wong, 1999, p. 32).

Extolling the importance of ICT in the instructional process, Chapin and Messick (1992) assert that the role of ICT in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary education policy. To this extent, developed countries in Europe and America have made legislative provisions on the imperative use of ICT in the instructional process (Brittain, 1988). Consequently, there has been a staggering amount of research related to the use of ICT for educational purposes in these developed nations. Today, nearly everyone in these countries gains access to Information and Communication Technology (ICT), and the purchases of computers for school use in such countries as the United States of America has been increasing in such a pace that it is difficult to keep track of how many computers there are now in American Schools (Harper, 1987).

A survey reported by Becker (1986) on the instructional uses of computers in United States public and private schools suggested that over one million computers were in American elementary and secondary schools and that more than fifteen million students used them during 1985. The report also says that more than half-a-million teachers used computers for instructional purposes during the same period and half of American secondary schools owed at least fifteen computers each. Considering the fast pace of ICT in the last twenty years in Europe and America, the figures reported by Becker (1986) must have risen astronomically by now. According to Thomas (2003), the story in Britain is

basically the same as that of the USA. This country has been able to keep such a pace as a result of government funding through the local Education Authorities and the Education Reforms Act of 1988 that compelled the central government to make budgetary provision for ICT.

Although the developing countries including, Ghana have become aware of the invaluable role of ICT in effective teaching and learning, they have not been able to make significant progress in improving education through this medium. In Africa, concerted efforts have been made by many governments including Ghana to initiate internet connectivity and ICT training programmes. Such programmes are expected to link schools and libraries around the world to improve education; enhance cultural understanding; develop vital skills of creativity; problem-solving and independent thinking which the youth need for survival in the global setting.

From the early 1990s, education stakeholders in Ghana have been concerned about how teachers and students use computers in schools and how their use supports learning. In 2004, the Parliament of Ghana passed into law Ghana's ICT for Accelerated Development (ICT4AD) policy, which is currently at various stages of implementation. This policy represents the vision of Ghana in the information age and addresses 14 priority focus areas including accelerating human resource development and promoting ICT in education.

Efforts are gradually being made to provide educational institutions with computers and to encourage ICT as an integral component of the educational process so as to meet the demands and challenges of globalization. Information

and communication technologies (ICT) do not “automatically add quality to teaching and learning. It is possible to use [them] for trivial purposes, to waste students’ time ... or even worse, [use them] for destructive or immoral purposes or to entrench differences” (Dellit, 2002, p. 56).

It is for the above reasons that the role of the teacher is very important in rolling out this innovation. This is because teachers are at the centre of curriculum change and they control the teaching and learning process. Therefore, they must be able to prepare the young generation for the current technology in which the competency to use ICT to acquire and process information is paramount (Plomp et al., 1996). Education in the 21st century requires teachers to be at the cutting edge of knowledge. There is the need to consider teachers perception towards ICT and how they use ICT in their teaching processes. Woodrow (1992) asserts that any successful transformation in educational practice requires the development of positive user attitude towards new technology. The development of teachers’ positive attitudes toward ICT is a very significant factor not only for increasing computer integration, but also for avoiding teachers’ resistance to ICT use (Watson, 1998).

Statement of the Problem

The emphasis on integration of ICT into all subjects in Ghanaian schools has become more urgent considering the prevailing teacher-dominated approach to schooling and teaching in the country. Learning is largely passive and products of the schools are rated low in creativity, critical thinking and problem-solving,

apparently, because the schools have failed to develop such skills in students. Teachers who are supposed to be effective agents of ICT integration at times are unable to integrate ICT in their teaching for a number of reasons. The History teacher in the Ghanaian second cycle schools is no exception. In the words of Zhao, Pugh, Sheldon and Byers, (2002, p. 511) "...teachers need to know the affordances and constraints of various technologies and how specific technologies might support their own teaching practices and curricular goals. They also need to know how to use technologies".

For the achievement of full ICT integration into all subjects particularly History, there is the need to find out the reasons why History teachers are unable to integrate ICT in their teaching. Much of early research on ICT use in education has ignored teachers' perception toward ICT. Such studies only focused on ICT and their effect on teacher's competence; thus overlooking the psychological and contextual factors involved in ICT applications. It must be stated that History teachers' perception toward ICT is also related to their ICT competence because according to Rogers (1995), peoples' perception toward a new technology are the key element in its adoption. This suggests that studies at the early stages of ICT integration should focus on teachers or the end-users' perception toward ICT. There are a number of ICT applications that can be used in instruction for the benefit of History students. These include word processing, spreadsheet, presentational software, database, graphical application, drills, simulation, search engines and others. According to Harris (2002), schools with good ICT resources achieve better results than those that are poorly equipped. There is the need to

find out which of the ICT applications History teachers use and the reasons behind their usage.

The level of proficiency in the use of the above mentioned ICT applications also determines the level of integration and consequently, its benefit to History students. Depending on teachers' background, interest, and other factors, teachers have varied level of self efficacy with regards to ICT usage. It is, therefore, important to harmonize the level of self efficacy of History teachers in ICT usage to an appreciable level for the purpose of meaningful ICT integration. As History teachers begin to use ICT, they are likely to be faced with challenges. Gulbahar and Guven, (2008) pointed out some of the barriers to ICT integration and they included insufficiency of teachers' technical knowledge to prepare materials based on technology; inadequacy of ICT courses offered to teachers; mismatch between ICT and the existing curricula; class-time frame and lack of incentives for encouraging technology.

Against the background of these challenges, it will be expedient that there should be the design of effective professional development that focuses on enhancing History teachers self efficacy in ICT integration. According to Hinson, Caldwell and Landrum, (1989), one- shot seminars for professional development are not effective and should be avoided.

Because of the potency of ICT to improve education and ameliorate most of the ineffectiveness in the schooling process in Ghana, it becomes necessary to investigate History teachers' perception and their usage of information and communication technology to improve teaching and learning of History. It is

hoped that the descriptive information that will be revealed by the study would guide policy makers as to the way forward for ICT integration into History by Ghanaian Senior High School History teachers.

Purpose of the Study

In 2004, Ghanaian Parliament passed into law Ghana's ICT for Accelerated Development (ICT4AD) policy. This policy represents the vision of Ghana in the information age and addresses fourteen priority focus areas including accelerating human resource development and promoting ICT in education. It must be noted that, before ICT4AD policy, some schools in Ghana particularly Senior High Schools had access to computers and other computing devices. With the passage of the ICT4AD law, there had been considerable number of computers found in some Ghanaian schools. It is hoped that these computers were put to instructional use by teachers in these fortunate schools. As a result, this study seeks to investigate teachers, particularly History teachers' perception and usage of ICT. Kumasi and Cape Coast Metropolis were selected for this worthwhile study because of the likelihood of Senior High Schools in the area to have ICT equipments. Therefore, it would be in place to conduct the study on teachers who are likely to have access to ICT. The overall purpose of the study cannot be achieved without considering these important themes.

The study is aimed at finding out History teachers' perception about ICT integration into the teaching of their subject. Considering the role of History to any society, it is imperative to always seek for the avenue to promote its teaching.

As a result, there was the need to find out History teachers' perception about ICT integration as it promotes teaching and learning processes.

There are a number of ICT applications including drills, simulation, databases, spreadsheet, graphical application, presentational application and a host of others. It was my aim to find out which ICT resources History teachers use in their instructional process.

Again, it was meant to ascertain the purpose behind History teachers' use of ICT tools. It is important to know their purpose in order to correct any misconception that some teachers may have regarding the relevance of ICT tools to teaching and learning. This would go a long way to promote better integration of ICT to the teaching of History.

After considering the purpose behind History teachers' use of ICT, it would be worthwhile to know their level of competence in these ICT tools. This is because History teachers' perceptions of self-efficacy in relation to ICT usage will reflect how successful they are able to integrate it in their teaching processes for the benefit of their students. More so, it was my hopes to find out the barriers History teachers face during ICT usage in the teaching process. The knowledge of these barriers would help in dealing with them so as to achieve full integration of ICT into History teaching and learning.

Moreover, I would like to know the incentives that are likely to encourage History teachers' to integrate ICT in their teaching. Since the ultimate aim is to promote History teachers use of ICT in their instructional process, these incentives when known must be made available, if possible.

Furthermore, I wish to find out History teachers preferred methods for professional development in the area of ICT integration. It is important to provide History teachers with continuing professional development for them to maximise their competence in integrating ICT. As there are numerous ways of professional development, it will be ethical to seek the consent of History teachers. According to Hinson et al, (1989) one- shot seminars for professional development are not effective and should be avoided.

Finally, I hope to find out what skills or traits that are imparted to students through the use of ICT in instructional processes. History is considered to be one of the liberal arts subjects and as a result, helps students to develop a sense of social responsibility, as well as strong and transferable intellectual and practical skills such as communication, analytical and problem-solving skills, and a demonstrated ability to apply knowledge and skills in real-world settings.

Research Questions

This study examined History teachers' perception and usage of ICT in promoting teaching and learning. The study was guided by the following research questions and hypothesis:

1. What are History teachers' perceptions about ICT integration into History teaching?
2. Which ICT resources do History teachers' use?
3. What are History teachers' purposes of using ICT tools?

4. What are History teachers' perceptions of self-efficacy in relation to ICT usage?
5. What are the barriers History teachers face during ICT usage in the teaching process?
6. What are History teachers preferred methods for professional development in the area of ICT integration?

Research Hypothesis

In response to the above research questions, the following two hypotheses were formulated and tested. These hypotheses were tested at 0.5 significance level.

The two hypotheses were;

Hypothesis One

H₀ - There is no statistically significant difference between the perception of ICT of male and female History teachers.

H₁ - There is statistically significant difference between the perception of ICT of male and female History teachers

Hypothesis Two

H₀ - There is no statistically significant difference in the perception of ICT between History teachers who have their personal computer and those who lack it.

H₁ - There is statistically significant difference in the perception of ICT between History teachers who have their personal computer and those who lack it.

Significance of the Study

Whiles much has been written about ICT and their effect on teacher's competence, little has been written on teachers' perception toward ICT. As a result, the psychological and contextual factors involved in ICT integration by teachers particularly History teachers are overlooked.

This study attempts to contribute to the literature of ICT integration by providing an evidence-based foundation for both discussion and subsequent study into History teacher's perceptions and usage of information and communication technology in promoting teaching and learning.

This study is significant for several reasons. First, it would provide an understanding of the role of ICT in the work of the History teacher. In the words of Cox, Preston and Cox, (1999), ICT benefits to History teachers include: Making lessons more interesting; more enjoyable for teachers and their students; more diverse; more motivating and supportive of productive learning.

Secondly, the study would show the current level of expertise of History teachers in the use of ICT tools. Their level of expertise would guide the way forward in matters of ICT integration into History. This would go a long way to help History students, society and the entire country.

Thirdly, it is hoped that this study would give a clear picture of the barriers History teachers face in their quest to integrate ICT into History teaching. Anderson (1997) has identified a range of physical and cultural factors that affect ICT use by teachers, including lack of reliable access to electricity; limited technology infrastructure (especially internet access, bandwidth, hardware and

software provision); language of instruction and available software; geographical factors such as country size; terrain and communications; demographic factors such as population size, density and dispersion. Knowledge of these barriers would help in dealing with the situation.

Finally, it is hoped that the study would guide educational policy makers in their quest to draft and implement policies in the area of ICT integration in Ghana particularly in History subjects. This clarion call is long overdue.

Delimitation of the Study

The study confined itself to the use of ICT for instructional purposes by History teachers in second cycle institutions. As much as other subject teachers use ICT in instructional processes, the focus of this study was on the History teacher. The study also did not look at the use of ICT in educational management but rather ICT as a tool in achieving instructional goals specifically in history. It would have been good to conduct a nationwide study but this study was restricted to Senior High Schools in both Cape Coast and Kumasi Metropolises.

Limitations of the Study

According to Gay (as cited in Amedahe ,2010), “a limitation is some aspect of a study that the researcher knows may negatively affect the results, or generalizability of the results, but over which he/she probably has no control”. Although the research design for gathering information was carefully thought out, the following elements were beyond my control:

- (a) The truthfulness of the responses to self-rating on the questionnaires by the students.
- (b) Important information that participants chose to discuss or withhold from the study.

Questionnaires as research instrument are always subject to certain biases; one of them is that questionnaires provide the subject with a predetermined choice of responses; therefore, such information does not reflect the richness that open-ended questions would offer. On the other hand, by providing a constant structure, questionnaires allow more systematic comparisons and wider generalizations. Another limitation is that reported behaviour may not provide as accurate a description of behaviour as direct observations. The problem with observing behaviour in term of time is the amount of data that would be required to make inferences about the variables in this study (Gay, 1992).

Definition of Terms

Information Communication Technology: ICT comprises the use of at least a computer and the internet as well as computer hardware and software, networks, and a host of devices that convert information (text, images, sounds, and motion) into general digital formats.

Computer Competence: Is being able to use the software and hardware of a computer. In this study, it refers to the history teachers who are highly

experienced and capable of using a wide range of applications in their teaching, performing various tasks, and are able to learn on their own.

Computer Literacy: The ability to read and use computer. In this study, computer literacy is referring to someone having knowledge and understanding of computers and their uses to the best of their ability.

Senior High School Teachers: History teachers, who teach in Senior High Schools, be it private or public.

UNESCO: United Nation Education, Social and Cultural Organizations

OECD: Organization for Economic Cooperation and Development

ICT4AD: Information Communication Technology for Accelerated Development.

Organisation of the Rest of the Study

Chapter one is devoted to the introduction to the study. The chapter includes the background to the study that gives a brief account of the introduction and integration of ICT into education; statement of the problem; research questions; significance of the study; definition of terms and the organization of the study.

Chapter two addresses the review of related literature on the studies involving both theoretical and empirical review. Rogers' diffusion of innovation theory is addressed. Empirically, studies related to ICT integration, the need for ICT and challenges are reviewed. Teachers' attitude towards ICT integration is

also considered alongside the factors that influence teachers to integrate ICT.

Chapter three describes the methodology for the study. It indicates the population; the sample and sampling procedure; instrumentation; data collection procedures and data analyses. Chapter four presents the summary and discussion of major findings of the study. Chapter five deals with summary, conclusion, recommendations and suggestion for further studies.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Overview

This chapter considers theoretical framework relating to how innovation is diffused among members of a social system and the extent to which members of the social system can claim to be on top of the use or implementation of the innovation. The study reviewed some empirical studies in the area of the ICT need and its use in education with particular reference to History as a subject. The barriers of ICT integration were also considered alongside appropriate professional development for teachers to fully integrate ICT into their teaching.

Theoretical Framework

Diffusion of Innovation Theory

Since using ICT in teaching is an innovation to be diffused into schools, Rogers' (1995) diffusion of innovation theory was examined to seek support to the study. According to Rogers (1995), diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system. There are four specific elements in the diffusion process, namely, the innovation, communication channels, time and social system (Rogers, 1995).

This theory informs the implementation of innovative teaching practice in the academia. The working document of the third regional UNESCO conference 1971 observes innovation as the introduction of a new idea, a process or technique and its adoption for wide-spread use to replace an existing practice or technique. An innovative approach, therefore, implies an awareness of the inadequacy of an existing practice, an attitude to search for new ideas, willingness to test and putting them to use. I.C.T. has introduced innovation into education other than the traditional teacher centred with chalk and books.

The innovation in this study is the integration of ICT in teaching and learning of History. The communication channels are those shared between teachers. The time of diffusion is measured by the rate, which is measured by the number of teachers who have changed their practice by embracing the new innovation in a certain time span. The social system is the school setting teachers find themselves. Rogers' (1995) innovation diffusion theory is therefore appropriate for this study.

Rogers' classified innovation- decision into three namely, optional, collective and authority. The innovative- decision process can be divided into five stages, the knowledge, persuasion, decision, implementation and confirmation stage. In the knowledge stage, potential adopters are given knowledge until they can recall the information, comprehend the information and finally acquire the knowledge and skills required for the effective adoption of the innovation. In persuasion stage, potential adopters begin to like the innovation and are willing to discuss it with others, and finally accept the message of the innovation.

In decision stage, potential adopters seek additional information about the innovation, and have the intention to try the innovation. In the implementation stage, potential adopters become full adopters and use the innovation regularly and continuously. In the confirmation stage, adopters recognize the benefits of using the innovation, integrate the innovation into their ongoing routine, and promote the innovation to others. Whether an innovation can be diffused easily depends on the nature of the innovation which includes its relative advantage, compatibility, complexity, trialability, observability and the change agent (Rogers, 1995).

Empirical Review

The rest of this chapter will deal with empirical review relating to the definition of Information and Communication Technology (ICT); the need for ICT in education; ICT use in both developed and developing countries, Ghana's ICT education policy; the definition of History and ICT integration into it. The benefits of ICT to students, teachers as well as the barriers of integration will be reviewed.

Information and Communication Technology

According to Lever-Duffy, McDonald and Mizell, (2003), ICT comprises the use of at least a computer and the internet as well as computer hardware and software, networks, and a host of devices that convert information (text, images, sounds, and motion) into general digital formats. Information and communication technology (ICT), in this context, represent a new approach for enhancing the

dissemination of information and will be used, applied, and integrated into learning on the basis of conceptual understanding and methods of informatics.

From the earliest times when computers were commercially available, they could be found in use in educational institutions, and educators (Bork, 1980) argued that computers should be used to support learning. Initially, computers were used to teach computer programming but the development of the microprocessor in the early 1970s saw the introduction of affordable microcomputers into schools at a rapid rate. Computers and applications of technology became more pervasive in society which led to a concern about the need for computing skills in everyday life. As public awareness grew, this need for computer literacy became extremely influential and many schools in the developed world purchased computers based on this rationale. The 1990s was the decade of computer communications and information access, particularly with the popularity and accessibility of internet-based services such as electronic mail and the World Wide Web. At the same time, the CD-ROM became the standard for distributing packaged software replacing the floppy disk. This allowed large information-based software packages such as encyclopaedias to be cheaply and easily distributed. As a result, educators became more focussed on the use of the technology to improve student learning.

Meaning of Integration

Technology for integration according to Tomei (2005) represents the creation of new technology-based materials, combining otherwise disparate technologies to teach. Appropriate technologies are identified and harvested in

the educational sector. The objective of integration is to develop new, previously non-existent, innovative instructional materials to enhance the teaching experience.

In the past, curriculum began with content materials gathered from chapters of a textbook, clips of a movie or audiotape from the library, or maps from a contemporary atlas. At this level of the taxonomy, information technology-based components create new materials. The host of advanced technologies makes them powerful tools for teaching in the 21st century, and the theories that are adopted to integrate that technology cannot be underestimated.

As described earlier, the Taxonomy for the Technology Domain employs, as one of its premises, the concept of hierarchal order; in other words, learners and teachers must move up the taxonomy from literacy to collaboration, decision making, and infusion, before tackling integration and the development of original content materials. Digital cameras; scanners; CD-ROM burners; digital audio and video media players; and personal computers, equipped with state-of-the-art word processing, graphics presentation, and Web editing applications have made student and teacher generated infusion of instructional materials not only possible, but promising technologies for teaching. Literacy, Collaboration, Decision Making, Infusion, Integration, and Technology offer a unique perspective for integrating information technology into the classroom.

The Rationale for ICT in Schools

It is necessary to develop a thorough rationale before beginning to use computers in schools and classrooms. There is little or no point in providing computers in schools unless there is a rationale behind it. With the increasing availability of computer hardware, it is important that teachers do not become engrossed in the machine but focus rather on their primary role as educators. Teachers need to extend their imaginations with the awareness that as developments in computer technology occur they will be able to achieve more of their goals- imparting of knowledge.

Since the 1960's the computer has been heralded, by some, as the solution to many problems in education. Many early computer scientists saw the possibility of the computer replacing teachers in schools. However, these pictures of students sitting behind computer terminals for much of the day have largely not occurred in mainstream schools and most would not like this to be realised (Collis, 1989). There are three main rationales for ICT in schools: one concerns the organisational productivity of the school, and the other two focus on the needs of students: technological literacy and support for their learning. The latter two rationales are supported by the recent Australian report raising the Standards (DEST, 2002)

The need for ICT competent teachers stems from the need for ICT competent students and for ICT- rich learning environments that enhance students' learning across the curriculum. Apart from a few exceptional schools, in the 20th century, computers had only a minimal impact on what happens in

classrooms (Becker et al., 1999). There has been much debate over the reasons for this discrepancy between the potential and what is realised. The computer is one of a range of technologies now available to teachers and students. In past decades, technologies such as radio, television and overhead projectors similarly had little lasting impact on the experiences of students and teachers in schools. In these cases, a large amount of money was spent on these resources which some would argue would have been better spent on other resources. It is important that scarce resources to support learning in schools are not wasted and therefore care needs to be taken in choosing to use computers to support learning.

Historically, technology has been developed to solve problems, improve living standards and to increase productivity. Therefore, it is reasonable that we should expect educational technology to be developed with similar objectives. Within the educational context, these objectives become increased in productivity and in solving of problems in teaching/learning programmes.

The New Paradigm in Learning and the Role of ICT

The classroom learning environment provides a structure to describe the setting in schools within which learning is organised and the roles of the teacher and students. However, it does not describe the reasons or purpose behind the construction of any particular learning environment. This is dependent on the beliefs and actions of those responsible for setting up the environment, particularly the underlying pedagogical philosophy of the teacher. There is little

doubt that the pedagogical philosophy to which most 'Western' educational leaders and researchers subscribe is that of constructivism.

Almost all those who advocate major reforms of schooling, particularly through the use of computers, have the view that learning needs to be more informed by constructivism (Clouse & Nelson, 2000). Often, arguments for school reform involve constructivist concepts such as the need for students to develop higher order thinking skills and the failure of current schooling methodologies to provide the opportunity (Nevell, 1993). In the extreme, the technologies of the information age are perceived to be an irresistible force on education (Mehlinger, 1996).

A critical component of theories of constructivism is the concept of proximal learning, based on the work of Vygotsky (1978), which posits that

learning takes place by the learner completing tasks for which support (scaffolding) is initially required. This support may include a tutor, peer or a technology such as the applications of computers. This has led to the use of the term computer supported learning. Computer supported learning environments are those in which computers are used to either maintain a learning environment or used to support the student learner in this Vygotskian sense (DeCorte, 1990).

Therefore, the technology is used to help create the types of learning environments and the types of support for learning that are known to be ideal, that Glickman (1991) argues have been ignored or failed to be implemented widely in the past.

The aim is to create learning environments centred on students as learners and a belief that they learn more from what they do and think about rather than from what they are told. If the aim is to offer new learning opportunities, or to improve the way in which current learning activities are implemented, then the overall effectiveness of learning environment is of paramount concern, not whether they are more effective with or without computers. It is important that the ever changing nature of computer-based technology does not overshadow the enduring nature of learning and the solid and ever increasing base of knowledge about learning. This knowledge is not superseded by new technologies; rather, it can inform the use of new technologies when applied to learning.

Digital Divide

The willingness to integrate ICT into education is likely to be shared by all people and countries because of the perceived benefits; yet most developing countries including Ghana lag behind the process of integration. A major pre-occupation in the literature on ICT and education has been the question of the “digital divide” (OECD, 2004). According to an OECD report, digital divide is defined as the disparity in ICT diffusion and use between industrial and developing countries (or, indeed, between rich and poor, men and women, urban and rural areas within individual countries).

Wachira (2005) states that in developing countries, where less than 1% of the population has access to ICT, the digital divide is largely a rural-urban divide

with those in the urban areas being on the vantage point. Compaine (2001) claims in his book, *The Digital Divide: Facing a Crisis or Creating a Myth?*, that:

today's digital divide was yesterday's computers-in-the-schools divide, the television divide of 1955, the radio divide of 1930, or the book divide of the previous half-millennium. The difference between then and now is that both technologies seem to eliminate most of these gaps at much faster rates (Compaine, 2001, p.102).

In his paper "Assessment of Existing Empirical Analyses of the Underlying Causes of the Digital Divide and Policy", Wijewardena (2002) suggests that there are six key underlying causes of the digital divide. These are the disparities in access to ICT resources; the impact of the digital divide being a driver of the digital divide; cultural features; language issues; level of urbanisation and the level of concentration of ownership in ICT infrastructure and services.

Finally, Bracey (2005) puts forward that it is critical to ensure that the digital divide between developing and developed countries is bridged through the introduction of ICT into elementary school systems, where early learning begins. In his point of view, the challenge for all is to make use of new technologies in meaningful ways to maximize their value to learners, teachers and others involved in the dissemination of the uses of technology.

ICT in Developing Countries

Hepp, Hinojosa, Laval and Rehbein , (2004), claim that developing countries have become anxious about the widening gap between their reality and the aggressive ICT policies of some developed countries. Consequently, there is a more urgent need to improve the quality and equity of education to bridge the gap between developed and developing nations, and ICTs are perceived as necessary tools for this purpose (Hepp et al, 2004). So what are the developing countries, including Ghana, doing to bridge the gap?

The Government of Ghana has placed a strong emphasis on the role of ICT in contributing to the country's economy and for that matter, education. The country's medium-term development plan captured in the Ghana Poverty Reduction Strategy Paper (GPRS I&II) and the Education Strategic Plan 2003-2015 all suggest the use of ICT as a means of reaching out to the poor in Ghana.

In 2004, Parliament passed into law Ghana's ICT for Accelerated Development (ICT4AD) policy, which is currently at various stages of implementation. This policy represents the vision of Ghana in the information age and addresses fourteen priority focus areas. Accelerating human resource development and promoting ICT in education – the deployment and exploitation of ICT in education is among the fourteen priority focus areas.

The ICT in education policy for Ghana had a long gestation period. An attempt at policy development for the sector predates the national ICT policy. A committee set up by the Ministry of Education, Youth and Sports outlined an ICT

in education policy framework and produced a document that remained untouched for a long time. The objectives of the policy were to:

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 standardising 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.

The Ghanaian tertiary education sector is the most advanced in the deployment and use of ICT in the country. All the country's major universities have their own separate ICT policy, which includes an ICT levy imposed on students. This enables students to have access to computer labs with broadband connection. In the basic and secondary education sector, a project to set up computer laboratories in all science schools in the country has led to a significant number of computers being installed across the country. Most of these schools are in the urban centres, therefore, deepening the digital divide between the urban and rural dwellers. Again, there is a great disparity between public and private schools in access to ICT. This makes it difficult for integration of ICT into the various facet of the educational sector, particularly into the subjects taught at our schools.

ICT Integration into History Subject

ICT integration in schools is needed in order to accomplish many objectives and improve the quality of lessons in all subject areas including History. History is one of the subjects that is being taught in the Ghanaian second cycle institutions. History according to Murray as cited by Haydn (2001), is the narration of the lives of men and the times in which they lived and what they did in the situation that faced them. Generally, History is the study of important past events, people and places. According to Masterman and Sharples (2002), History must be seen as a distinct form of knowledge because it is not only concerned with collecting and memorising discrete facts about historical events or people, but it requires the understanding of a number of complex processes which are specific to the subject. This complex processes involve reconstructing historical events using a range of evidence, which can be incomplete, inconsistent and at times, difficult to interpret.

History is considered to be part of liberal arts subjects studied in Senior High Schools. Liberal education according to Woodrow as cited by Haydn (2001), is an approach to learning that empowers individuals and prepares them to deal with complexity, diversity, and change. It provides students with broad knowledge of the wider world as well as an in-depth study in a specific area of interest. Liberal education helps students to develop a sense of social responsibility, as well as strong and transferable intellectual and practical skills such as communication, analytical and problem-solving skills, and a demonstrated ability to apply knowledge and skills in real-world settings.

The study of History helps a group of people to be aware of their past. This knowledge of the past will shape their movement into the future. The primary aim of History teaching in Africa, according to Murray as cited by Haydn (2001), is to put the African child into the stream of History from which he has been absent for so long. When students are introduced to their heritage, the hard won experiences of the parents are acquired and with it, an appreciation of difficulties experienced by the parents and the respect for their successes chalked. This makes students understand the present as most of the current issues in the society have their causes rooted in the past. History, again builds patriotism in the present generation because they come to appreciate the heroic deeds of their forefathers or ancestors.

Considering the importance of History to every society, it becomes expedient to find ways of promoting its learning using whatever means available. Research shows that ICT can be used to promote the teaching and learning of History. According to Brown and Purvis (2001) ICT provides opportunities for the teaching of historical enquiry, including the generation and testing of historical hypotheses and problems, as opposed to only learning historical facts. ICT can be used to help students of all ages to develop the knowledge and skills that History demands. It provides students with the opportunities to:

1. Select and reproduce sources in a range of media.
2. Contextualise and interpret sources.
3. Reconstruct and simulate historical events.
4. Construct narratives.

5. Identify patterns in large quantities of data.
6. Develop, organise and communicate historical thinking.

ICT Applications in the Teaching of History

Many writers with an interest in the use of ICT in History argue that the word processor can be a powerful tool in developing pupils' History skills (Haydn, 2001). Word processing was found by Ofsted to be the most common form of ICT use in History in schools, and its potential to develop historical thinking was also identified (Ofsted, 2002). The word processor can help pupils to organise their historical thinking, analyse and interrogate sources and structure their writing. Prior and John as cited in Ofsted (2002), describe the benefits of using a word processor to facilitate 'revelatory writing'. Here, pupils participate in historical writing and interact with its content, enabling them to take control of their own historical writing, and providing opportunities for developing different writing styles.

Hypertexts are documents which contain links within the text; clicking on these links with a mouse takes the reader to another part of the document, or to a new document, containing related information. In the context of History, this allows pupils to be guided through a 'multiplicity of narratives', enabling them to weave together a variety of sources in order to create their own analyses and interpretations of historical events and decisions. This also has the effect of highlighting to pupils the importance of interpretation as a process in the study of History (Brown, 2001). Nichol, Watson and Waites, (2003), found that using

hypertexts to study historical sources offered several advantages, including the fact that pupils could very quickly and easily move from one source to another, and that they were not restricted to a limited number of sources to investigate. In their study, pupils were found to be impressed with the logic of the hyperlinked structure.

The ability to store large amounts of data, together with the sophisticated manipulation features of databases, allow History pupils to look for patterns in data, frame hypotheses, and place smaller narratives about specific events, people and decisions, within wider historical contexts (Martin, 2003). Using the database to perform low-level tasks such as sorting and ordering data, allow the pupils to concentrate on higher-order thinking, about the patterns they wish to look for and the information they want to extract (NCET, 1998).

Encouraging discussion and debate between pupils is seen as an important technique for developing pupils' historical thinking and understanding (Wellman & Flores, 2002). Computer-mediated communications (CMC) can bring added value to such discussions. Thompson and Cole (2003) found that when asked to discuss historical issues via an online message board, pupils quickly realised that in order to win their argument, it was necessary to carefully select evidence to support their views, which in turn required them to be specific and analytical. Pupils were also found to have improved their writing skills, along with their ability to express ideas, use historical thinking and compare historical sources (Wellman & Flores, 2002; Thompson & Cole, 2003). Teachers have also been found to benefit from online discussions, through the ability to identify pupils'

misconceptions and evidence of poor historical thinking, which might not necessarily have been noticed in the classroom (Thompson & Cole, 2003)

Preparation in advance is critical when using the ICT for historical research (Hennessy, Harrison and Wamakote , 2003). ICT use in History teaching is most beneficial when coupled with effective teacher intervention, to ensure pupils learn at a good pace and can concentrate on the History, rather than aspects of the ICT (Munro, 2000).

Pupils need to be taught how to interpret information and make judgements and inferences about it, in order to make historical research using electronic sources more effective(Moore, 2000; Hennessy et al., 2003).

Benefits of ICT Integration into History to Students

The use of ICT in schools should have a positive impact on students in terms of supporting their learning and providing them with relevant technological literacy. When ICT is used to support learning, it is intended that this should increase the engagement of students and in most cases, increase their independence, so that students are not only required to use ICT competently but may also be required to adjust to changes in their role. That is, using ICT has implications for students beyond their ICT literacy into their perceptions of and preferences for their roles as learners.

There are numerous researches showing the benefits of ICT integration into History to students. According to Hennessy et al., (2003) ICT helps to alleviate the constraints of writing and allows pupils to concentrate on the specific

topic for discussion. This does not only save time, but also encourages reflection, analysis and understanding.

Again, using databases to work with large volumes of historical data can help pupils to look for patterns, frame hypotheses, question accepted theories and place events into wider contexts (Martin, 2003; TTA, 1999a). It also helps in the cross – checking of historical facts in order to do away with distortions, exaggerations and biases.

Moreover, digital video can provide students with a model for gathering oral History before they conduct their own oral History interviews, allowing them to develop and retain the required skills more effectively (Wolfrum, 2001). These clips can be stored in a database for other students to use. Furthermore, ICT and multimedia fit well because of the multi-source nature of History. Multimedia can give a ‘total picture’ and can allow pupils to integrate evidence into their work. (Brown & Purvis, 2001)

More so, the use of computer-mediated communications (CMC), including online discussion groups, enable students to better develop and communicate historical arguments, thinking and understanding, and these skills can be transferred to essay writing (Thompson & Cole, 2003). Again, the use of hypertexts (documents embedded with hyperlinks) to investigate sets of historical documents and sources can help develop pupils’ understanding and interpretation skills (Nichol et al., 2003; Brown, 2001), and allows pupils to see connections between historical issues.

Computer simulations allow complex historical processes to be represented in a more dynamic way, and allow students to gain a better understanding of how key decisions in History were affected by the environment and the pressure of time (Taylor, 2003). In fact, the use of ICT promotes collaboration between pupils and can contribute to the development of historical thinking and other social skills like teamwork (Brown & Purvis, 2001).

Barriers of Integration

The act of integrating ICT into teaching and learning is a complex process and one that may encounter a number of difficulties. These difficulties are known as “barriers” (Schoepp, 2005). A barrier is defined as “any condition that makes it difficult to make progress or to achieve an objective” (WorldNet, 1997, as cited in Schoepp, 2005, p.2). The objective being analysed in this study is successful ICT integration in History subject.

Across Africa and most particularly Ghana, there are many challenges in bringing ICT into the education process in general. Anderson (1997), has identified a range of physical and cultural factors that affect ICT use by teachers, including lack of reliable access to electricity, limited technology infrastructure (especially internet access, bandwidth, hardware and software provision), language of instruction and available software; geographical factors such as country size, terrain and communications; demographic factors such as population size, density and dispersion. The issues of access are further exacerbated by

extreme poverty, growing prevalence of HIV/AIDS, and lack of political will to alleviate the situation through proper planning.

In addition, educational factors including levels of teachers own education and literacy rates, and access to professional development play an important role. Indeed many studies indicate that it is teachers attitudes, expertise, lack of autonomy and lack of knowledge to evaluate the use and role of ICT in teaching (or technophobia in teachers) that are the prominent factors hindering teachers readiness and confidence in using ICT support. There is also a general inadequacy of learning resources, course curricula and other learning materials that incorporate ICT use.

It is a common misconception that access to technology on its own motivates teachers to apply it in their teaching. The biggest barriers to the use of computers identified by teachers participating in the 1998-1999 survey assessing the World Links schools programme were the lack of time available in classes, and in their own schedules for planning; and the lack of a national policy on the use of computers in schools (Kozma, McGhee, Quellmalz and Zalles, (2004), p. 376). Relatively, few teachers identified infrastructure problems, such as the lack of computers in working condition, unreliable electricity or lack of access to the internet, although these varied by country. As less technologically advanced countries joined the programme in 1999-2000, the major barriers to ICT classroom use became the lack of computer hardware (60%), software (56%) and reliable internet. There is also a general inadequacy of learning resources, course

curricula and other learning materials (52%), particularly in African countries such as Mauritania, Ghana and Zimbabwe.

Lack of access to technology is inevitably a major barrier in its application, but availability does not necessarily translate into use. However, in the study of Nigerian secondary school teachers by Tella, Tella, Toyobo, Adika and Adeyinka, (2007), lack of technical support in the schools, and teachers' lack of expertise in using ICT were the prominent factors hindering teachers' readiness and confidence in using ICT.

History teachers also experience barriers in their use of ICT. When asked to rank a list of factors which might deter them from making greater use of ICT in their classroom teaching, History teachers in UK had this to say. Lack of time to plan how to integrate the use of computers into lessons emerged as the most influential and the most commonly mentioned barrier to ICT use. It was mentioned as a deterrent by 30 out of 42 respondents. This was closely followed by 'difficulty in getting access to computers'. This goes contrary to Abbott's assertion that "UK schools are approaching optimum numbers of computers in classrooms" (Abbott, 2000, p. 46). If this is the situation in a developed world then what will exist in a developing world like Ghana can only be imagined. In Ghana, access to computers is limited to few schools, particularly in the urban centres. The benefits of integration can only be achieved when History teachers get access to the powerful instructional tool.

The third most influential factor, according Tella et al (2007) was 'pressure to cover curriculum content'. Factors which were seldom mentioned as

deterrents, or which were low on the list of History teachers' concerns were: lack of confidence/knowledge of how computers work; anxiety about the classroom management implications of the use of computers; ideological resistance to the use of computers (they do not believe that computers have much to offer in developing pupils' historical knowledge and understanding).

Teachers' ICT Usage

The integration of information and communication technologies can help revitalize teachers and students. This can help to improve and develop the quality of education by providing curricular support in perceived difficult subject areas like History. To achieve these objectives, teachers need to be involved in collaborative projects and development of intervention change strategies, which would include teaching partnerships with ICT as a tool. Teachers' attitudes are major predictors of the use of new technologies in instructional settings. Teachers' attitude toward ICT shapes not only their own ICT experiences, but also the experiences of the students they teach. According to Zhao and Cziko (2001), three conditions are necessary for teachers to introduce ICT into their classrooms: teachers should believe in the effectiveness of technology, teachers should believe that the use of technology will not cause any disturbances, and finally teachers should believe that they have control over technology. Demetriadis et al. (2003, p. 35) reached similar conclusions in their research study: "Training efforts are generally welcomed by teachers but consistent

support and extensive training is necessary in order for them to consider themselves able to integrate ICT in their teaching methodologies”.

According to Rogers (1995), one of the major factors affecting people’s attitude toward a new technology is related to the features of the technology itself. Rogers’ points out five basic features of technology that affect its acceptance and subsequent adoption: relative advantage, compatibility, complexity, observability, and trialability. Thus, a new technology will be increasingly diffused if potential adopters perceive that the innovation: (a) has an advantage over previous innovations; (b) is compatible with existing practices; (c) is not complex to understand and use; (d) shows observable results and (e) can be experimented with on a limited basis before adoption.

Preparing students for real life in our technological and diverse world requires that teachers embed ICT in significant learning experiences (Braun & Kraft, 1995). However, research studies show that most teachers do not make use of the potential of ICT to contribute to the quality of learning environments, although they value this potential quite significantly (Smeets, 2005). This is partly because the change agents are too heterophilous to the teachers (Rogers, 1995).

Harris (2002), conducted case studies in three primary and three secondary schools, which focused on innovative pedagogical practices involving ICT. Harris (2002, p. 458) concludes that the benefits of ICT will be gained “...when confident teachers are willing to explore new opportunities for changing their classroom practices by using ICT”. As a consequence, the use of ICT will not only enhance learning environments but also prepare the next generation for their

future lives and careers (Wheeler, 2001). At this point, teachers can claim to be self efficacious in the integration of ICT.

Teachers' Perceptions of Technology Integration and Gender Differences

Teachers' perspectives of their use of instructional technology, understanding of this technology, and feelings about the support structure associated with this equipment have been examined with the findings suggesting that teachers believe technology is an integral part of the process of educating their students. Pertaining to gender differences in technology integration, the literature showed that there were some differences between male and female teachers in technology use, while other studies did not (Shashaani, 1997; Bhargava et al., 1999; Hong & Koh, 2002).

The results of Shashaani's (1997), study showed that female students were less interested in computers and less confident than male students. The results also showed that males were more experienced than females and females' attitudes improved after taking the course. Bhargava, Kirova-Petrova, and McNair, (1999), studied gender discrepancy in both classroom access and use. The findings showed that there were significant differences between males and females and these differences were due to biased classroom practices, lack of female role models, and home computer gender gaps.

Following the same path, Hong and Koh (2002), found that female teachers were more anxious than male teachers toward hardware. They also found that the overall computer anxiety levels of male teachers were not significantly

different from the anxiety levels of female teachers. Only for the hardware anxiety domain was significant differences detected between male and female teachers.

Way Forward - Professional Development

What direction is integration going if the teachers themselves have minimal knowledge, skills and differing attitudes? John and Sutherland (2004), argue that at the moment we have too much ‘innovation stretch’ where the gap between pioneers, and the medium and non-user is wide. For this ‘long tail’ to be shortened, new and innovative forms of professional development need to be instigated. They explain that most of the professional development to date has been based on the idea of “re-tooling,” that is, training is structured to “augment the existing curriculum by providing specific training to groups of teachers in the mechanics of the technology.” According to Rogers' theory of innovation diffusion, agents must be aware of clients felt needs and adapt the diffusion programme to them. “They should not, however, relinquish their role in developing and shaping these needs, so as to optimize the clients’ welfare in the long run.” (Rogers, 1995, p.341) What is needed is “what Watson (1998) calls a ‘re-forming’ approach, whereby training is built on a staged process through which teachers have to pass in order to change their practice.” Ertmer (2000), refers to this as “scaffolding” teachers through the adoption and change process. This adoption and change process according to Rogers (1995), can be divided into

five stages, the knowledge, persuasion, decision, implementation, and confirmation stage.

Unfortunately, N.G.O.s and other organizations that provide ICT training for teachers in Ghana rarely conduct a need assessment prior to the training. This needs assessment when conducted will help the change agency to know the peculiar needs of the teachers concerned in order to deliver the training to meet teachers' needs.

According to Boakye and Banini (2008), few teachers are experimenting the use of ICT intra and inter-subject to enhance pedagogy in Ghana. Such practices are likely to take root across the country, but in an uneven fashion depending on access, individual and group initiative, and support from school administration and parent teachers associations. The broader institutionalisation of ICT use in teaching and learning will take more time, even though there is a promising practice for durability of ICT in schools, such as parent involvement and the creation of school committees responsible for ICT integration.

An obvious start has to be the issue of teacher skills. According to Boakye and Banini (2008), most teachers are far less competent with ICT than their students. Many of those over the age of 45 have had little exposure to computers until recently and are just learning to handle email. Concerted training efforts are required to get most academic staff up to a basic standard of computer competence and this should be a priority.

As Newhouse (2002), points out, rarely are teachers given the time or encouragement to reflect on their beliefs about learning or considering implementation of new learning programmes. According to John and Sutherland (2004), it is important that teachers “engage directly in the process of learning” being offered to students. This helps teachers “get on the inside of the innovation as well as increasing their confidence, competence, experience and understanding of the technology and its pedagogical implications.

In conclusion, although ICT skills of teachers in Ghana are limited, the number of teachers using them is on the increase and so are opportunities to learn them. What is observed is the willpower teachers have to learn ICT and ICT integration, which must be harnessed by government without delay. Technical knowledge about computers is as important as experience using computers professionally, but exemplary teachers will have objectives for students’ use of computers that promote “student engagement and thoughtful effort, outside of class time as well as during class” (Becker et al., 1999, p.32). Teacher training and an environment that promotes reflection on teaching practice are vital to support beneficial pedagogical integration of ICT.

CHAPTER THREE

METHODOLOGY

Introduction

This study investigated History teachers' perception and usage of Information and Communication Technology to promote teaching and learning. The study sought to unravel History teachers' perception towards ICT integration, their reasons for using ICT as well as their level of competence. The barriers History teachers' face were also considered and appropriate professional development strategy expected to emerge out of this study.

This chapter describes the research methodology adopted for the study. The chapter describes the research design; the population; sample and sampling technique; instrument used in the study; validity and reliability of instrument; the data collection procedures and the data analysis.

Research Design

Thyers, as cited by De Vos (1998, p.123), states that a research design is "a blue-print or detailed plan for how a research study is to be conducted." The research design adopted for this study was descriptive research design. Descriptive approach was chosen for the study because such approach is very good at producing "information on groups and phenomenon that already exist"

(Fink, 2003, p. 22). It was my hope to seek the current status with regards to History teachers' perception and usage of ICT and to discover the relationship among known variables. This is in line with Graziano and Raulin's, (1997) views about conducting descriptive study.

Population

Powers et al cited by De Vos (1998, p.190), define a population "as a set of entities for which all the measurements of interest to the practitioner or researcher are represented". A population is therefore, the totality of persons, events, organization units, case records or other sampling units with which the research problem is concerned. The target population for this study was all History teachers in second cycle schools within Cape Coast and Kumasi Metropolises. Cape Coast and Kumasi Metropolises were selected because the cream of Senior High schools in Ghana is likely to be located there. Also, schools in these areas are more likely to have qualified teachers and facilities like ICT laboratory. Besides, I am familiar with the area of study. According to Ghana Education Service (statistical Unit), History teachers in both Metropolis were 78.

Sample and Sampling Procedure

The term sampling according to Kerlinger as cited in De Vos (1998, p.190), "means taking any portion of a population or universe as representative of that population or universe". Often it is impossible to identify all the subjects of a

population of interest. So samples are chosen for a study. Sampling helps to channel time, money and effort to producing better and quality research.

The sample size used for the study was 78 history teachers. This was made up of 54 male history teachers and 24 female history teachers. I conducted a census survey among the 78 history teachers. According to Cooper and Schindler (2000, p.164) “a census is feasible when the population is small and variable, any sample we may draw may not be representative of the population from which it is drawn”. Considering the target population in question (History teachers in both Kumasi and Cape Coast metropolis), it is most appropriate to use the census survey method.

Instrument

In considering the instruments for data collection for this study, I made a thorough consideration of the factors that determined the appropriateness and reliability of the instruments for the study. I found that questionnaire was feasible in collecting the data for the study. According to Nwana (1992, p.133), questionnaire is used “if the respondents cannot give information in the project unless complete anonymity is guaranteed....and the respondents are literates.....” These reasons are in the direct correlation to this study, hence, the choice of questionnaire as the instrument.

The self-administered questionnaire consisted of nine sections. Section A of the questionnaire was on the demographic information of the respondents with a total of nine items, followed by Section B which was about History teachers’ perception of the integration of ICT into the teaching and learning

History. This section contained ten questions and its aim was to ascertain History teachers' perception about ICT use in teaching. It was followed by Section C, which was on ICT applications used by History teachers. This section contained eleven items. The purpose of this part was to find out the self-expertise level of the History teachers in relation to certain ICT applications. Section D was on the purposes for which History teachers use ICT and it contained seven items. Section E examined History teachers' perceptions of self efficacy in ICT use. It contained eleven items.

The next section, thus Section F, focuses on the obstacles faced by History teachers in their quest to use ICT and contained eight items. Section G concentrated on History teachers preferred method of professional development in the area of ICT integration containing nine items. These nine items were categorized into two groups; thus information resources covering 5 items and support resources covering 4 items. Items in Sections B to G were measured on closed-ended Likert scale varying from 3 to 6 points.

Pre-test of Instruments

A pre test of the instruments was conducted in three Senior High schools in the Ajumako district namely Mando Senior High, Besease Senior High and Ajumako Secondary Technical School. The main aim of the pre test was to pilot test the instrument for validity and reliability. Nevell (1993), stressed the importance of scrutinizing data gathering instrument to identify ambiguity or misleading questions and for instructions and suggesting improvements. Minor

changes were made after the pre – test, in collaboration with the supervisor of the study. The items were tested for reliability using an internal consistency method (Cronbach Alpha Coefficient) which yielded reliability coefficient of 0.825. The value is higher than the 0.8 criterion which is regarded as internally reliable (Brymann & Cramer, 1997).

Data Collection Procedure

The Ghana Education Service, Kumasi and Cape Coast were contacted with a letter for permission to conduct the study in their jurisdiction. After the permission was granted, the heads of institutions of the Senior High Schools were contacted in person, briefed on the importance of the study and their consent sought for teachers' participation in the study.

Almost all the Senior High Schools in both Kumasi and Cape Coast were involved in this study because of the relatively small number of History teachers. History teachers who took part in the study were identified through the solicited assistance of the headmistress or headmaster as the case might be. To ensure the anonymity of the teachers, no identification was required of them in answering the instrument. I hand delivered the instruments to all the participants. The respondents were instructed to return the questionnaires to a designated person in their school. The questionnaires were administered to all respondents in Cape Coast Metropolis from 4th to 8th October, 2010 and taken back from 11th to 15th October. On the part of respondents in Kumasi, the questionnaires were administered from 19th to 27th October and taken back from 1st to 5th November,

2010. Approximately a month was used to collate all the questionnaire form the schools involved. At the end, 67 questionnaires out of 78 were retrieved from the field representing 86% return rate.

Data Analysis

The data collected were coded, described, analysed statistically and interpreted in tabular form using Statistical Package for Social Sciences version 18. Owing to the categorical nature of most of the data, the main statistical technique adopted for description of data was percentages. Again, independent sample t-test was used to determine the difference that existed between respondents' sex, and owning a personal computer on one hand and respondents not having computer.

CHAPTER FOUR
RESULTS AND DISCUSSION

This chapter deals with the presentation and discussion of results as received from the respondents through the use of questionnaire. The analysis was done using Statistical Package for Social Science (Version 18). For the purpose of clarity, tables were used to depict the results.

Demographic Information

This section covers the distribution of respondents' age, sex, teaching experience, possession of computer, access to internet, qualification and others. It is important to know a little biographic data about our respondents and Table 1 specifically looks at the ages, gender, location and the type of school of the respondents.

Table 1: Biographic Distribution

Characteristics	Frequency	Percentage (%)
Age (n=67)		
Below 30 years	20	29.9
30- 40 years	32	47.8
Above 40 years	15	22.4

Table 1 continued

Gender (n=67)		
Male	49	73.1
Female	18	26.9
Location (n=67)		
Kumasi	43	64.2
Cape Coast	24	35.8
Status of school (n=67)		
Government Assisted	53	79.1
Private	14	20.9

Source: Field data, 2010

From Table 1, 20 of the respondents representing 29.9% were below 30 years. Thirty two respondents representing 47.8% were aged between 30 and 40 years while 15 respondents representing 22.4% were above 40 years. The data from Table 1 clearly shows that History teachers in the two Metropolises (Kumasi and Cape Coast) are predominantly youthful. It is hoped that History teachers in the two Metropolises will be in better position to see the need to integrate ICT into teaching as theorized by Rogers (1995) and Jennings & Onwuegbuzie (2001) that people who are innovative and quick to adopt new technologies tend to be younger and better educated.

On respondents' gender distribution, 49 respondents representing 73.1% were males while 26.9% were females. It indicates that the teaching of History in the two Metropolises was dominated by males. Forty three History teachers representing 64.2% reside in the Kumasi Metropolis while 24 respondents representing 35.8% reside in Cape Coast. This is partly because there are more Senior High schools in Kumasi compared to Cape Coast. Finally, 53 respondents representing 79.1% were History teachers in government assisted schools while 14 respondents representing 20.9% were History teachers in private schools. This is because there are comparatively fewer private Senior High Schools in the two Metropolises.

The next table captures information on respondents' years of experience, ownership of computer and period of ownership. This is very important information that is likely to help us understand how history teachers will fare in integrating ICT into their subject. The information is presented Table 2.

Table 2: Second Biographic Data

Characteristics	Frequency	Percentage (%)
Years of Experience (n=67)		
Below 5years	11	16.4
5 to 10 years	32	47.8
Above 10 years	24	35.8
Ownership of Computer (n=67)		
Yes	51	76.1
No	16	23.9

Table 2 continued

Period of ownership (n=67)		
One to two years	15	29.4
Three to six years	27	52.9
Above seven years	9	17.6

Source: Field data, 2010

The information presented in Table 2 shows that, History teachers with teaching experience between 5 to 10 years outnumber all other group of teachers representing 47.8%. Eleven respondents had less than 5 years teaching experience representing 16.4% while 24 respondents had over 10 years teaching experience representing 35.8%. On the whole, History teachers in the catchment area are fairly experienced. According to Chio (1992), in his work - Attitudes toward and knowledge of microcomputers used for instruction among commercial high school teachers in Korea, he found out that experienced teachers in the study had more positive attitudes toward computers, had less computer literacy skills than the younger teachers. It is, therefore, expected that respondents' level of experience will reflect in their ability to see ICT as a powerful tool for the profession as revealed by Chio (1992).

Fifty one History teachers representing 76.1% had their own personal computers while 23.9% lacked personal computers. In his work, Roussos (2007), found that computer ownership had a significant effect on the participants' computer attitudes. This is relatively good for the purpose of integrating ICT into the teaching of History. Out of the 51 History teachers who had their personal

computers, 15 respondents representing 29.4% had owned their personal computer for a period between 1 to 2 years. Twenty seven respondents representing 52.9% had owned their computer for a period between 3 to 6 years. Nine respondents representing 17.6% had owned their computer for a period above seven years. The average period of ownership of personal computer is 3 years. Even though it is not bad, a lot need to be done to increase the figures.

Respondents access to computers and internet is very crucial for ICT integration to the teaching and learning of history. Table 3 presents information on respondents' access to computers, internet at home and school. Respondents' daily computer usage was also analysed in Table 3.

Table 3: Computer and Internet

Characteristics	Frequency	Percentage
Internet access at home (n=67)		
Yes	13	25.5%
No	38	74.5%
Computer access in school (n=67)		
Yes	62	92.5
No	5	7.5
Internet access at school (n=67)		
Yes	31	46.3
No	36	53.7
Daily computer usage (n=65)		
No usage	7	10.4
Less than 1 hour	23	34.3

Table 3 continued

1 to 3 hours	31	46.3
4 to 6 hours	5	7.5
More than 6 hours	1	1.5

Source: Field data, 2010

The analysis in Table 3 reveals that out 51 History teachers who had their personal computers, 25.5% representing 13 of the History teachers had internet at their homes while a whopping 74.5% representing 38 teachers did not have access to internet at their homes. The situation is very precarious and yet fascinating in this information technology era.

Sixty two of the respondents representing 92.5% had a number of computers in their school while 5 respondents representing 7.5% did not have computers in their school. The data here is very encouraging and it will go a long way to promote ICT integration. It is important to note that where computers do exist in schools, these computers are mostly inadequate considering the population of the school.

Thirty one respondents representing 46.3% claim their school had internet access while 53.7% of the respondents do not have internet at their school. This situation does not augur well for studies in this information era because it is argued that internet has a role for the successful integration of ICT in education. It enables teachers to transform instruction from teacher-centred to student-centred where learners may interact with their peers and use it for their own learning needs.

Seven respondents representing 10.4% do not use computers at all, 23 respondents representing 34.3% used computers less than an hour in a day, and 31 respondents representing 46.3% used computers for 1 to 3 hours a day. Only 1 respondent used a computer for more than 6 hours a day while 5 respondents representing 7.5% use computers for 4 to 6 hours a day. It must be noted that teachers' computer knowledge and experience are especially important for effective usage of ICT in their classroom. This can be achieved when teachers spend ample time behind computers. According to Rogers (1983), this will lead to generative learning, which is the first stage of knowledge stage of diffusion of innovation.

The last table under the demographic data looks at the qualification of the respondents'. It is not out of place to consider how equipped the respondents are in carrying out their duties as history teacher. Table 4 presents the information on respondents' qualification.

Table 4: Qualification

Qualification	Frequency	Percentage (%)
Bachelor of Arts (History)	10	14.9
Bachelor of Education (History)	14	20.9
Bachelor of Education (Social studies)	28	41.8
Others	14	20.9
No Response	1	1.5
Total	67	100

Source: Field data, 2010

From the data presented in Table 4, 14 respondents representing 20.9% are qualified History teachers, 28 respondents representing 41.8% were having a Bachelor of Education degree in Social studies, and 10 respondents representing 14.9% were having a Bachelor of Arts degree in History while 14 respondents representing 20.9% had a degree in varied areas. One respondent representing 1.5% failed to declare his/her qualification.

Indeed, it has been observed by Olakulehin (2007), that meeting the desperate need for more qualified, competent teachers is the most persistent and daunting challenge facing the African education system in general and the integration of ICT in particular. It is therefore, not surprising to have some teachers who are not specialists in History but who find themselves teaching History.

Analysis of Main Data

In this section, I sought to present the major findings that emanated from the study. They ranged from History teachers perception, ICT applications that are used as well as the purposes behind their usage, teachers' perception of self efficacy, barriers to integration and professional development.

Research Question 1: What are History Teachers' Perceptions about ICT Integration into History teaching?

It is known that perception of something informs behaviour towards it. It is, therefore, in this direction that I sought to find out History teachers perception towards ICT. The result of their perception is presented in Table 5.

Table 5: History Teachers Perception towards ICT

Teachers' Perception	Agree Freq (%)	Neutral Freq (%)	Disagree Freq (%)	Total Freq (%)
ICT makes teaching more effective	63 (94.0%)	3 (4.5%)	0%	66 (98.5%)
ICT helps to meet the varying needs of students	54 (80.6%)	10 (14.9%)	2 (3.0%)	66 (98.5%)
ICT helps in organizing professional tasks as a teacher	56 (83.6%)	8 (11.9%)	2 (3.0%)	66 (98.5%)
ICT improves students collaboration	59 (88.0%)	6 (9.0%)	1 (1.5%)	66 (98.5%)
ICT improves students motivation	57 (85.1%)	7 (10.4%)	2 (3.0%)	56 (98.5%)
ICT improves students learning outcomes	59 (88.0%)	6 (9.0%)	2 (3.0%)	67 (100.0%)
ICT increases the interest of students toward courses	53 (79.1%)	12 (17.9%)	2 (3.0%)	67 (100.0%)
ICT increases teachers productivity	57 (85.1%)	8 (11.9%)	2 (3.0%)	67 (100.0%)
ICT helps to makes effective use of instructional time	54 (81.0%)	9 (13.0%)	3 (4.5%)	66 (98.5%)

Source: Field data, 2010

From the data presented in Table 5, 63 respondents representing 95.6 % believe ICT makes teaching more effective, 54 respondents representing 80.6 %

believe ICT helps to meet the varying needs of students and 57 respondents representing 85.1% believe ICT increases their productivity.

One can clearly see that respondents had fairly good perception towards ICT and as suggested by Cope and Ward (2002) in their work 'Integrating learning technology into classrooms: the importance of teachers' perceptions', perceptions of ICT are likely to be crucial in their successful integration, in that an individual's perception is pertinent as it is likely to influence the human behavior.

The results showed that History teachers believe that ICT will bring them and their students' advantages, in that ICT makes their teaching effective, possible to attend to the varying need of students, motivate their students, promote collaboration among students, enhances students' interest and increases teachers' productivity.

Research Question 2: Which ICT Applications do History Teachers Use?

Any positive impacts of ICT on the teaching of History depend on the identification of appropriate ICT applications and ways in which it is used.

Improvements in teaching and learning of History will inevitably be reliant on the capacity of teachers to use ICT applications as an effective pedagogical tool in the pursuit of particular learning objectives. The results of teachers' rate of usage of certain identified ICT applications are shown in Table 6.

Table 6: ICT Applications used by Teachers

ICT RESOURCES	At least once	1 or 2 times a	Never (%)	Not available (%)
	a month (%)	year (%)		
Computers in general	47 (70.1%)	9 (13.4%)	4 (6.0%)	7 (10.4%)
Word processing packages	36 (53.8%)	14 (20.9%)	13 (19.4%)	4 (6.0%)
Databases	24 (35.8%)	16 (23.9%)	22 (32.8%)	5 (7.5%)
Presentation software	26 (38.4%)	13 (19.4%)	21 (31.3%)	7 (10.4%)
Any Internet activity	24 (35.7%)	18 (26.9%)	15 (22.4%)	10 (14.9%)
Search engines for Internet	24 (35.7%)	14 (20.9%)	20 (29.9%)	8 (11.9%)
Hypermedia / Multimedia	19 (28.4%)	20 (29.9%)	20 (29.9%)	8 (11.9%)
Simulation programmes	27 (40.3%)	13 (19.4%)	20 (29.9%)	7 (10.4%)
Drill / Practice tutorials	28 (41.9%)	15 (22.4%)	19 (28.4%)	5 (7.5%)
Television/Video	30 (44.8%)	20 (29.9%)	14 (20.9%)	3 (4.5%)
Electronic Encyclopedia and/or Atlas	29 (43.3%)	18 (26.9%)	14 (20.9%)	6 (9.0%)

Source: Field data, 2010

The analysis in Table 6 reveals that History teachers' usage of computer for general purpose had the highest monthly patronage representing 70.1% followed by word processing packages (53.8%), Television/ video (44.8%) and Electronic encyclopedia/Atlas (43.3%). Also Drill/practice tutorials recorded (41.9%), simulation programmes had (40.3%), Presentation software (38.4%), and

Databases (35.8%). Furthermore, Internet activity had (35.7%), search engine for internet (35.7%) and finally hypermedia/ multimedia (28.4%).

ICT resource used by History teachers in at least two times a year are Television (29.9%), Hypermedia/ Multimedia (29.2%), Any internet activity (26.9%), Electronic encyclopedia/Atlas (26.9%) , Databases(23.9%) and Drill/Practice tutorials(22.4%) others are word processing packages (20.9%), search engine for internet (20.9%), simulation programmes (19.4%), Presentation software (19.4%) and computer in general (13.4%).

The percentage of ICT resources that are never used by History teachers are as follows Databases (32.8%), Presentation software (31.3%), search engine for internet (29.9%), Hypermedia/ Multimedia (29.9%), simulation programmes (29.9%), Drill/practice tutorials (28.4%) and any internet activity (22.8%). Others are Electronic encyclopedia/Atlas (20.9%), Television/video (20.9%), word processing packages (19.4%) and computer in general (6.0%).

Some teachers were unable to determine the I CT resources they use. Even though History teachers had positive perception about ICT, yet this perception was not equally reflected in their use of ICT tools. ICT application like Microsoft word that is deemed very important in the teaching of History (Haydn, 2001) was not adequately exploited. This indicates that a lot need to be done to inculcate into History teachers the potentials of these ICT applications in their teaching.

Research Question 3: What are History Teachers' purposes of using ICT tools?

The intent of an action is of much importance just as the action itself. In this section, I sought to find out History teachers purposes of using ICT in teaching. The result is clearly depicted in Table 7.

Table 7: Purpose of ICT Usage

Purpose of ICT Usage	Weekly (%)	Monthly (%)	Occasional (%)	Yearly (%)	Never (%)
Building Content.	16 (23.9%)	2 (3.0%)	29 (43.3%)	6 (9.0%)	14 (20.9%)
For communication.	26 (38.8%)	6 (9.0%)	23 (34.3%)	3 (4.5%)	9 (13.4%)
Teaching and instructional support.	21 (31.3%)	2 (3.0%)	17 (25.4%)	7 (10.5%)	20 (29.9%)
Personal development.	31 (46.3%)	3 (4.5%)	19 (28.4%)	3 (4.5%)	11 (16.4%)
Discussion forums.	11 (16.5%)	7 (10.4%)	19 (28.4%)	6 (9.0%)	24 (35.9%)
Instructional Films (video, CD, VCD)	12 (17.9%)	10 (14.9%)	25 (37.3%)	4 (6.0%)	16 (23.9%)

Source: Field data, 2010

According to Goddard (2002), there are increasing number of computers being used at home and an increasing number of technological devices available

to schools. The main purposes of using ICT in education according to the European Commission (2005), are management, teaching and learning facilities.

Using five point-Likert scale, respondents showed their purposes of using ICT during instruction. On weekly basis, 23.9% of the respondents use ICT for building content, 38.8% for communication, 31.3% for teaching and instructional support. For monthly usage; building content and teaching and instructional support had 3.0%; personal development accounted for 4.5%; discussion forums accounted for 10.4% and instructional films accounted for 14.9%.

Some respondents declared that they do not use ICT for any of the - aforementioned purposes. There were 20.9% for building content, 13.4% for communication, 29.9% for both teaching and instructional support and discussion forums, 16.4% for personal development and 23.9% for instructional films.

The results, affirm Guha (2000) points that teachers use computers for different purposes and objectives which include instructional purposes while others use them for both personal and instructional goals.

Research Question 4: What are History Teachers' Perceptions of Self-

Efficacy in Relation to ICT Usage?

History teachers' perception of self- efficacy will help to determine how these teachers are comfortable with ICT. This knowledge will go a long way to help in planning appropriate professional development in that regard. The result of History teachers' perception of self- efficacy is depicted in Table 8.

Table 8: History Teachers Perception of Self- Efficacy

Perception of self efficacy	Agree		Neutral		Disagree		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
I don't use computers as much as other resources like books, atlases.	51	(76.1%)	3	(4.5%)	13	(17.9%)	67	(100.0%)
I know what to do for using computers in instructional environments.	47	(70.2%)	9	(13.4%)	11	(16.4%)	67	(100.0%)
I am aware of the opportunities that computers offer.	63	(94.0%)	2	(3.0%)	2	(3.0%)	67	(100.0%)
I can answer any question my students ask about computers.	35	(52.2%)	5	(7.5%)	27	(40.3%)	67	(100.0%)
I am not sure that I am computer-literate for use computers in my class.	30	(44.8%)	6	(9.0%)	31	(46.3%)	67	(100.0%)
I think that I can use ICT in class activities more effectively.	43	(64.2%)	10	(14.9%)	14	(20.9%)	67	(100.0%)
I can use ICT tools like e-mail, forum and chat to make communication with my colleagues and students easier.	51	(76.2%)	5	(7.5%)	11	(16.4%)	67	(100.0%)

Table 8 continued

I can use ICT tools like internet to easily reach instructional resources.	55 (82.1%)	5 (7.5%)	7 (10.4%)	67 (100.0%)
I can use ICT tools to prepare course materials.	51 (76.2%)	6 (9.0%)	10 (14.9%)	67 (100.0%)
It is hard for me to explain the use of computer applications to my students.	35 (52.2%)	7 (10.4%)	25 (37.3%)	67 (100.0%)
I can handle different learning preferences of my students using ICT.	41 (61.2%)	15 (22.4%)	11 (16.4%)	67 (100.0%)

Source: Field data, 2010

The respondents used a three-point Likert-type scale to specify their perceptions of self efficacy on eleven (11) statements about using ICTs ($\alpha=0.64$). The results showed that 17.9% of the respondents agreed that they used computers as much as other resources like books and atlases for instructional purposes while 76.1% disagreed and 4.5 were neutral. Forty seven respondents representing 70.2% agreed that they know what to do for using computers in instructional environment, while 16.4% disagreed and 13.4% were neutral. Sixty three respondents representing 94.0% agreed and are aware of the opportunities that computers offer, while 3.0% disagreed and were neutral.

Respectively, thirty five respondents representing 52.2% agreed that they could answer any question their students asked about computer while 40.3%

disagreed and 7.5% were neutral. Thirty one respondents representing 46.3% agreed that they were computer literate for the use of computers in class while 44.8% disagreed and 9.0% were neutral. Forty three respondents representing 64.2% agreed they could use ICT in class activities more effectively day by day, while 20.9% disagreed and 14.9% were neutral. Fifty one respondents representing 76.2% agreed they could use ICT tools like email, forum, and chat to make communication with their colleagues and students easier while 16.4% disagreed and 7.5% were neutral. Fifty five respondents representing 82.1% agreed they could use ICT tools like the internet to easily reach instructional resources, while 10.4% disagreed and 7.5% were neutral. Fifty one respondents representing 76.2% agreed that they could use ICT tools to prepare course materials, while 14.9% disagreed and 9.0% were neutral. Twenty five respondents representing 37.3% agreed that they could explain the use of computer applications to their students, while 37.3% disagreed and 10.4% were neutral. Forty one respondents representing 61.2% agreed that they could handle different learning preferences and styles of their student using ICT, while 16.4% disagreed and 22.4 % were neutral.

The lack of confidence in the use of ICT in teaching History, as observed from Table 8, could be due to the fact that professional development opportunities are often unavailable, inconvenient, and/or inappropriate to their needs (Ivey, 2003). As a result, what Rogers (1995) termed the intrinsic enabler is missing in these teachers.

Research Question 5: What are the barriers history teachers face during ICT usage in the teaching process?

There are barriers in implementing every innovation and ICT integration into the teaching of History is no exception. Knowing the barriers will go a long way to deal with it. History teachers in both Kumasi and Cape Coast Metropolis identified some barriers in the quest to integrate ICT into their teaching. The results are shown in Table 9.

Table 9: Barriers of ICT Usage

Barriers of ICT Usage	Agree		Neutral		Disagree		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
Inefficient time to prepare instructional materials using ICT.	48	(71.6%)	7	(10.4%)	12	(18.0%)	67	(100.0%)
Inefficiency of teachers' technical knowledge to prepare Instructional materials using ICT.	52	(77.6%)	4	(6.0%)	11	(16.4%)	67	(100.0%)
Problems about accessibility to existing hardware (computer, overhead projector, printer, scanner etc.)	58	(86.6%)	6	(9.0%)	3	(4.5%)	67	(100.0%)
Absence of reward systems for encouraging technology usage	53	(79.1%)	9	(13.4%)	5	(7.5%)	67	(100.0%)

Table 9 continued

Inefficiency of instructional software/electronic resources	49 (73.2%)	9 (13.4%)	9 (13.5%)	67 (100.0%)
Deficiency in professional development opportunities for gaining knowledge and skill in integration of ICT	35 (52.2%)	9 (13.4%)	23 (34.4%)	67 (100.0%)

Source: Field data, 2010

The respondents used a three-point Likert-type scale to specify the barriers they face in their quest to use ICT in their various schools. Six statements were used to assess the barriers respondents face in using ICT ($\alpha=0.75$).

The barriers are so numerous and diverse that for the purpose of clarity, Brinkerhof (2006) grouped barriers of integration into four main categories: resources, institutional and administrative support, training and experience, and attitudinal or personality factors.

The results showed that 71.6% of the respondents agreed that they did not have sufficient time to prepare instructional materials using ICT whiles 18.0% disagreed and 10.4% were neutral. Fifty two respondents representing 77.6% agreed that they did not have enough technical knowledge to prepare instructional materials using ICT, whiles 16.4% disagreed and 6.0% were neutral. Fifty eight respondents representing 86.6% of the respondents agreed that they did not have easy access to computers, overhead projectors, printers and scanners, whiles 4.5% disagreed and 9.0% were neutral. Fifty three respondents representing 79.1% of

the respondents agreed that one barrier was the absence of reward system to encourage ICT usage while 7.5% disagreed and 13.4% were neutral. Forty nine respondents representing 73.2% of the respondents agreed that another barrier was the insufficient instructional software while 13.5% disagreed and 13.4% were neutral.

Finally, on the barriers, 52.2% of the respondents agreed that another barrier was deficiency in professional development opportunities for gaining knowledge and skills in integration of ICT while 34.4% disagreed and 13.4% were neutral.

These findings were in line with Ertmer's (1999), classification of barriers as falling into two primary categories: extrinsic (first order) and intrinsic (second order). Extrinsic barriers include lack of resources, inadequate training, insufficient technical support, and lack of time; intrinsic barriers include teachers'/instructors' beliefs, visions concerning technology integration, and views about teaching, learning, and knowledge.

Research Question 7: What are history teachers preferred methods for professional development in the area of ICT integration?

There are a lot of professional development strategies, sources and modules in the area of ICT integration. It is, therefore, important to know History teachers preferred professional development in both information resources and support resources so as to promote ICT integration by adhering to them. Table 10 and 11 depict the results from the respondents.

Table 10: Professional Development about ICT (Information Resources)

Professional Development about ICT (Information Resources)	I prefer		Neutral		I do not prefer		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
Internet	60	(89.6%)	3	(4.5%)	4	(6.0%)	67	(100.0%)
Printed Materials (manual or journal etc)	52	(77.6%)	12	(17.9%)	3	(4.5%)	67	(100.0%)
Self experiment	45	(67.2%)	11	(16.4%)	11	(16.4%)	67	(100.0%)
Participating seminars or taking courses	62	(92.5%)	5	(7.5%)	0	(0%)	67	(100.0%)
In-service Education	64	(95.5%)	3	(4.5%)	0	(0%)	67	(100.0%)

Source: Field data, 2010

In the area of professional development (Information Resources) respondents ranked them in this order: In-service education (95.5%), Courses or seminars (92.5%), Internet (89.6%), Printed materials (77.6%) and self experiment (67.2%). All kinds of professional development preferences and support service opportunities were highly rated, showing the willingness of teachers to learn and highlighting the lack of in-service training opportunities.

Table 11: Professional Development about ICT (Support Resource)

Professional Development about ICT (Support Resource)	I prefer		Neutral		I do not prefer		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
Experienced teachers on ICT.	59	(88.1%)	8	(11.9%)	0	(0%)	67	(100.0%)
Colleagues teachers	49	(73.1%)	15	(22.4%)	3	(4.5%)	67	(100.0%)

Table 11 continued

Other colleagues teachers in different schools	46 (68.7%)	15 (22.4%)	6 (9.0%)	67 (100.0%)
Technical support unit in the schools.	56 (83.6%)	11 (16.4%)	0 (0%)	67 (100.0%)

Source: Field data, 2010

In the area of professional development (support Resources) respondents ranked them in this order: experienced teachers on ICT (88.1%), technical support unit in the school (83.6%), colleagues teachers (73.1%) and other colleagues teachers in different schools (68.7%). Teachers saw the need for some sharing of experiences and discussion of new technologies and contemporary issues spearheaded by ICT experienced teachers so that they receive support in trying to keep up with new developments in ICT. In addition to longer practical work, teachers needed more resource materials such as supplementary workbooks and resource centres where they could find teaching materials and ideas.

Testing of Hypothesis

In order to further examine how History teachers perceive ICT, Two hypotheses were formulated and tested.

Hypothesis One: There is no statistically significant difference between the perception of ICT of male and female History teachers.

Table 12: Perception among males and females

Group	N	Mean	Standard Deviation	Levene's test		T-test for		Sig (2- tailed)
				for equality of variance	F	T	equality of mean. Mean diff.	
Male	49	3.73	1.186	0.934	0.337	-0.820	-0.265	0.415
Female	18	4.00	1.138					

Source: Field data, 2010

The analysis shown in Table 12 indicates that there was no significant difference in scores for male (M=3.73, SD = 1.19), and female [M= 4.00, SD= 1.138; $t(65) = 0.820, P=0.34$]. Where the degree of freedom “df” equals 65. The magnitude of the difference in the means was 0.01(eta squared). According to Cohen (1988), effect size of 0.01 is very small signifying that only 1% of the variance in perception was explained by the gender of the respondents. Male History teachers had a mean of 3.73 with a standard deviation of 1.186 while their female counterparts had a mean score of 4.00 with a standard deviation of 1.138. From the results, even though female History teachers had a better mean score compared to the male teachers, it was not statistically significant. On the strength

of this, the alternate hypothesis was accepted. Implying that there was no significant difference in perception among male and female History teachers.

This could be as a result of exposure of both gender to the same amounts and types of experiences on computers (Kirkpatrick & Cuban, 1998). The absence of gender disparity is obvious when females and males are in a learning environment that requires the constant use of computers and specific software to support learning activities. However, according to Atan, Azli, Rahman and Idrus, (2002) activities such as handling computer hardware and performing computer maintenance were still seen as masculine in nature.

Hypothesis Two: There is no statistically significant difference in the perception of ICT between History teachers who have their personal computer and those who lack it.

Table 13: Perception among haves and have not with regards to computers

Group	N	Mean	Standard Deviation	Levene's test for equality of variance		T-test for equality of mean. Sig (2- tailed)		
				F	Sig	T	Mean diff.	Sig (2- tailed)
Yes	51	3.94	1.047	3.957	0.051	1.712	0.566	0.092
No	16	3.38	1.455					

Source: Field data, 2010

The findings of this analysis presented in Table 13 indicates that there was no significant difference in scores for those who have computers (M=3.94, SD = 1.05), and those who lack it [M= 3.38, SD= 1.455; t (65) = 1.712, P=0.51]. Where the degree of freedom “df” is 65. The magnitude of the difference in the means

was 0.04 (eta squared). According to Cohen (1988), effect size of 0.04 was very small signifying that only 4% of the variance in perception was explained by the respondents' ownership of a computer.

From Table 13, History teachers who have a computer had a mean of 3.94 with a standard deviation of 1.047 while those who lack computer had a mean score of 3.38 with a standard deviation of 1.455. From the results, difference in perception among the haves and the have not in terms of ownership of computer was not statistically significant. On the strength of this, the research hypothesis two was therefore accepted.

This could be as a result of the proliferation of computer at all corners ranging from homes, schools, offices, internet café etc. This finding goes contrary to that of Sadik (2006) and Roussos (2007), who saw a significant difference in attitude among those who owned computers and those who lack it. To them, those who owned computers have a positive computer attitude than those who lack it.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECCOMMEDATIONS

In the previous chapter, the results obtained were presented and discussed. This final chapter summarizes the findings and conclusions of the study. It also offers some recommendations.

Summary

This study sought to understand History teachers' perception and their usage of ICT. In doing so, an in-depth look at the background of the study, statement of the problem, the purpose of the study, significance of the study as well as a comprehensive literature review were carried out. The study was guided by the following research questions:

1. What are History teachers' perceptions about ICT integration into History teaching?
2. Which ICT resources do History teachers' use?
3. What are History teachers' purposes of using ICT tools?
4. What are History teachers' perceptions of self-efficacy in relation to ICT usage?
5. What are the barriers History teachers face during ICT usage in the teaching process?

6. What are History teachers preferred methods for professional development in the area of ICT integration?

The study also tested these hypotheses:

Hypothesis One

H₀ - There is no statistically significant difference between the perception of ICT of male and female History teachers.

H₁ - There is statistically significant difference between the perception of ICT of male and female History teachers

Hypothesis Two

H₀ - There is no statistically significant difference in the perception of ICT between History teachers who have their personal computer and those who lack it.

H₁ - There is statistically significant difference in the perception of ICT between History teachers who have their personal computer and those who lack it.

The study adopted a descriptive survey approach involving Senior High schools in both Kumasi and Cape Coast Metropolises. The census method was employed owing to the relatively small number of history teachers in both Kumasi and Cape Coast Metropolises. The study adopted questionnaire as the instrument. It was analysed using Statistical Package for Social Sciences (version 18). The study revealed that respondents had positive perception towards ICT even though their access to ICT tools and its use were somehow limited. History teachers recognized the need for professional development to help them use ICT more effectively.

Summary of Research Findings

On perception of history teachers towards the use of ICT, it was found that most of history teachers' have fairly good perception towards ICT. The findings suggest that History teachers believe that ICT will bring them and their students' advantages, in that ICT makes their teaching effective, possible to attend to the varying need of students, motivate their students, promote collaboration among students, enhances students' interest and increases teachers' productivity. The successful use of technology in the classroom depends to a large extent on the teachers' attitudes toward these tools. A positive teacher attitude is essential for successful implementation of the newly-introduced guidelines for technology integration in schools.

Also, the study shows that History teachers' predominantly use of computer is for general purpose, word processing, and viewing Electronic encyclopedia. Word processor appearing on the list is very good because it is a powerful tool in developing pupils' History skills. Television and videos were also used extensively by history teachers.

From the study, respondents portrayed the use of ICT in teaching as being inherently advantageous. It came out clearly that History teachers' purpose of using ICT was much geared towards their personal gain than for instructional purposes. In order of priority, history teachers use ICT for their personal development, communication, teaching and Instructional support, Content building and discussion. It is rather unfortunate that history teachers seem to downplay the relevance ICT in their work.

On history teachers' perception of self efficacy in relation to ICT usage, majority of them have high perception of self efficacy in that, they claimed they were aware of the opportunities that ICT offers. History teachers responded positively to the indicators of self efficacy in ICT.

From the study, accessibility to existing computer hardware, overhead projector, printer, scanner etc. happen to be the major barrier to ICT integration among History teachers. In dealing with the problem, majority of the respondents saw the need to enhance investments in ICT infrastructure among others.

Majority of the history teachers saw the need for in-service education, seminars and technical support unit in their schools among others as a way of dealing with the situation. It also came out clearly that history teachers will prefer their colleague experienced teachers to take them through the training.

Finally, it evidently came out that, there was no statistically significant difference between the perception of ICT of males and females history teachers. This finding is contrary to the popular belief that males have better perception of ICT than females. Again, there was no statistically significant difference in the perception of ICT between history teachers who have their personal computer and those who lack it.

Conclusions

Finding innovative ways of integrating ICT into history lessons is one of the challenges the 21st century history teachers face. Effectively integrating ICT into history is much more complicated than providing computers with internet

connection. The integration of technology takes time; time to learn about the innovation and time to be adequately prepared to use it.

Based on the findings of the study, it can be concluded that history teachers hold positive perception toward ICT in education, and have strong desire for integration of ICT into the teaching of history, but barriers such as lack of confidence, lack of competence and accessibility have been found to be critical components for technology integration in schools. ICT resources including software and hardware, effective professional development, sufficient time and technical support ought to be provided for history teachers.

History teachers need to adopt, develop and support an integrative pedagogic culture that develops supportive practices for students' and encourages teaching and learning activities. It should be linked to the development of life-long learning and professional practices that enable history teachers to keep in touch with ICT developments, new knowledge and research on teaching and learning.

Recommendations for Policy and Practice

For a meaningful integration of ICT into the teaching of History in all Senior High Schools in Ghana, the government through the Ministry of Education must make ICT infrastructure like computers, projectors, television, etc available. It is only when the infrastructure is available that we can dream about integration.

Secondly, it would be useful for Ghana Education Service (G.E.S.) to provide ICT knowledge in the form of modules so that all teachers especially

History teachers would be able to integrate ICT into their lessons. The use of ICT materials in teaching should, therefore, be based on classroom research and provide excellent teaching ideas and activities for developing and strengthening students' concepts, skills and meta-cognition.

Moreover, merely providing schools with hardware, software and in-service training is not enough. Any in-service training needs follow-up support, peer coaching and peer dialogue to ensure successful use of ICT. The Ghana Education Service (GES) must make sure teachers are part of the decision making process with respect to the implementations of ICT innovations in schools, so that they become committed to the innovation with conviction.

Again, teachers, most especially History teachers, must realise that ICT is a powerful tool in their daily professional work. Teacher associations like Ghana National Association of teachers (GNAT) and National Association of Graduate teachers (NAGRAT) must conscientise their members about the role of ICT in education.

Furthermore, the role of internet in educating our future leaders cannot be overemphasised. As a result, Non Governmental Organisations (NGO) and other stakeholders like the Historical Society of Ghana must join hands to provide internet access to schools and teachers at affordable prices.

Finally, regional offices of Ghana Education Service (GES) need to establish localised resource centres to provide support for schools within the region. Easy access to databases of the available curricular resources and strategies would provide very useful information for communication among

teachers in the region. Workshops for teachers and students in the region could be conducted to promote cooperative projects and sharing of experiences and expertise.

Suggestions for Further Research

The current study is limited in scope because it was based on samples from Kumasi and Cape Coast Metropolis. To make the study more representative and generalisable for the whole country, there is the need to replicate this study among population groups using larger geographic areas. A study must also be conducted among teachers from other levels of education to compare their responses with that of Senior High School History teachers.

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APPENDICES

More than 6 hours []

11. Qualification Bachelor of Art (History) []
Bachelor of Education (History) []
Bachelor of Education (Social Studies) []
Others

SECTION B

History Teachers perception on ICT

Indicate by ticking your level of agreement to the following statements.

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
ICT makes teaching more effective					
ICT makes lesson plans richer					
ICT helps to meet the varying needs of students					
ICT helps in organizing professional tasks as a teacher					
ICT improves students collaboration					
ICT improves students motivation					
ICT improves students learning outcomes					
ICT increases the interest of students toward courses					
ICT increases teachers productivity					
ICT helps to makes effective use of instructional time					

SECTION C

ICT resources used by history teacher

Indicate by ticking the rate at which you use ICT resources in your work.

Application	Daily	Weekly	Monthly	1 or 2 times a year	Never	Not available.
Computers in general						
Word processing packages						
Databases						
Presentation software						
Any Internet activity						
Search engines for Internet						
Hypermedia / Multimedia						
Simulation programmes						
Drill / Practice tutorials						
Television/Video						
Electronic Encyclopedia and/or Atlas						

SECTION D

The purpose for teachers' use of ICT tools

Indicate by ticking how often you use ICT tools and your purpose for using them.

Purpose of ICT usage.	Level of usage						
	Never	Occasionally	Daily	Weekly	Monthly	Yearly	Not Available
Building Content							
For communication							
Teaching and instructional support							
Personal development							
Discussion forums							
Instructional Films (video, CD, VCD etc.)							

SECTION E

Teachers' perceptions of self-efficacy in ICT usage

Indicate by ticking your level of competence in ICT usage

perceptions of self-efficacy	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I don't use computers as much as other resources like books, atlases for instructional purposes.					
I know what to do for using computers in instructional environments.					
I am aware of the opportunities that computers offer.					
I can answer any question my students ask about computers.					
I am not sure that I am computer-literate for use computers in my class.					
I think that I can use ICT in class activities more effectively day by day.					
I can use ICT tools like e-mail, forum and chat to make communication with my colleagues and students easier					
I can use ICT tools to prepare course materials (assignments, handouts, presentation, demonstration etc.).					
It is hard for me to explain the use of computer applications to my students.					
I can handle different learning preferences of my students having different learning styles by using ICT.					
I can use ICT tools like internet to easily reach instructional resources.					

SECTION F

Barriers to ICT usage

Indicate by ticking the barriers you face in your ICT usage.

Barriers to ICT Usage	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Inefficient time to prepare instructional materials using ICT.					
Inefficiency of teachers' technical knowledge to prepare Instructional materials using ICT.					
Problems about accessibility to existing hardware (computer, overhead projector, printer, scanner etc.)					
Absence of reward systems for encouraging technology usage					
Poor technical and physical infrastructure of learning environments.					
Inefficiency of instructional software/electronic resources					
Deficiency in professional development opportunities for gaining knowledge and skill in integration of ICT					
Lack of interest in ICT usage					

SECTION G

History teachers preferred methods for professional development

Indicate by ticking your preferred method of professional development towards ICT integration.

Professional Development about ICT (Information Resources)	I prefer	Neutral	I do not prefer
Internet			
Printed Materials (manual or journal etc)			
Self experiment			
Participating seminars or taking courses			
In-service Education			

Professional Development about ICT (Support Resource)	I prefer	Neutral	I do not prefer
Experienced teachers on ICT.			
Colleagues teachers			
Other colleagues teachers in different schools			
Technical support unit in the schools.			