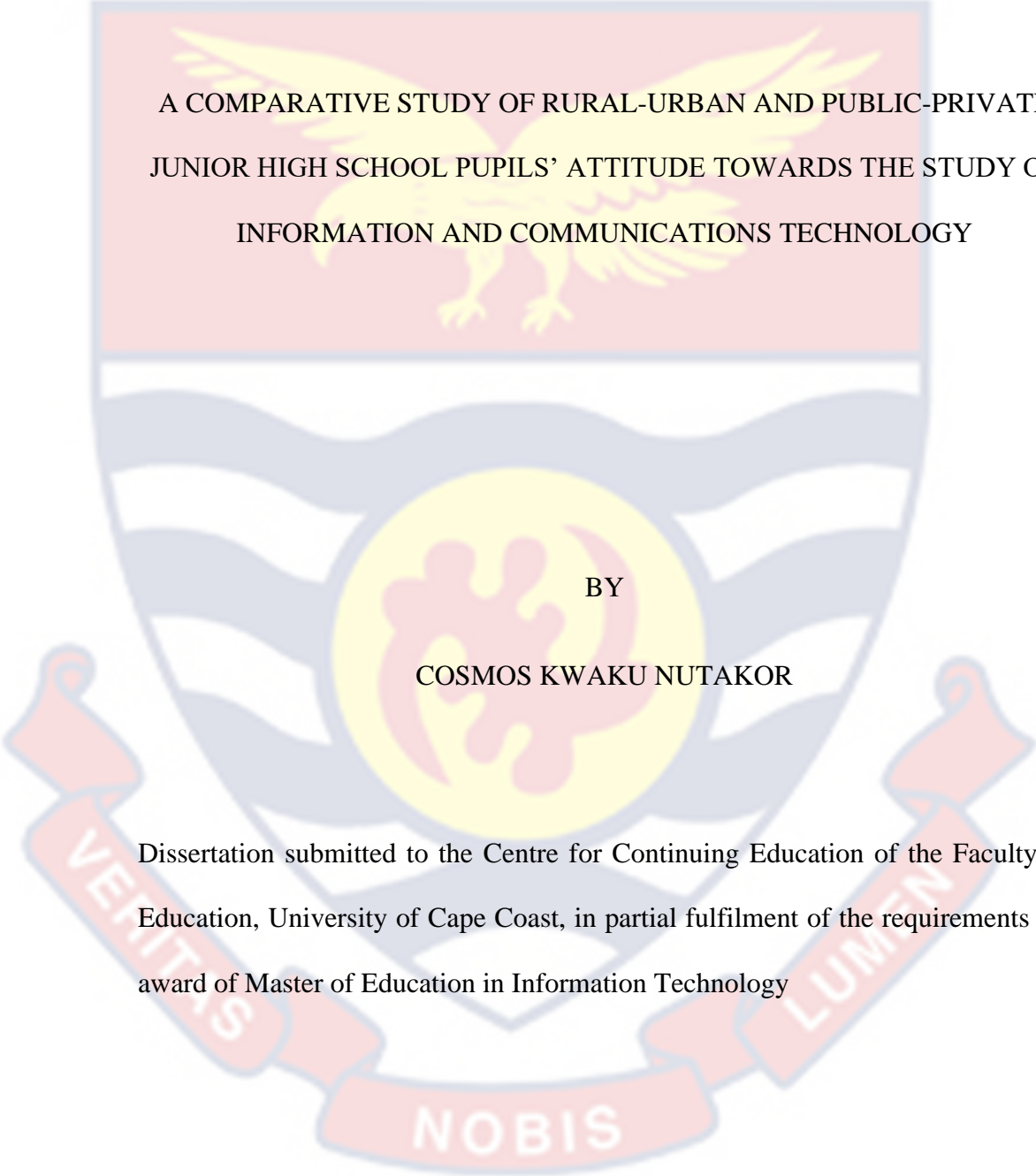


UNIVERSITY OF CAPE COAST



A COMPARATIVE STUDY OF RURAL-URBAN AND PUBLIC-PRIVATE
JUNIOR HIGH SCHOOL PUPILS' ATTITUDE TOWARDS THE STUDY OF
INFORMATION AND COMMUNICATIONS TECHNOLOGY

BY

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Dissertation submitted to the Centre for Continuing Education of the Faculty of
Education, University of Cape Coast, in partial fulfilment of the requirements for
award of Master of Education in Information Technology

JUNE 2012

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: Cosmos Kwaku Nutakor

Supervisor's Declaration

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

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

Name: Paul Dela Ahiatrogah

ABSTRACT

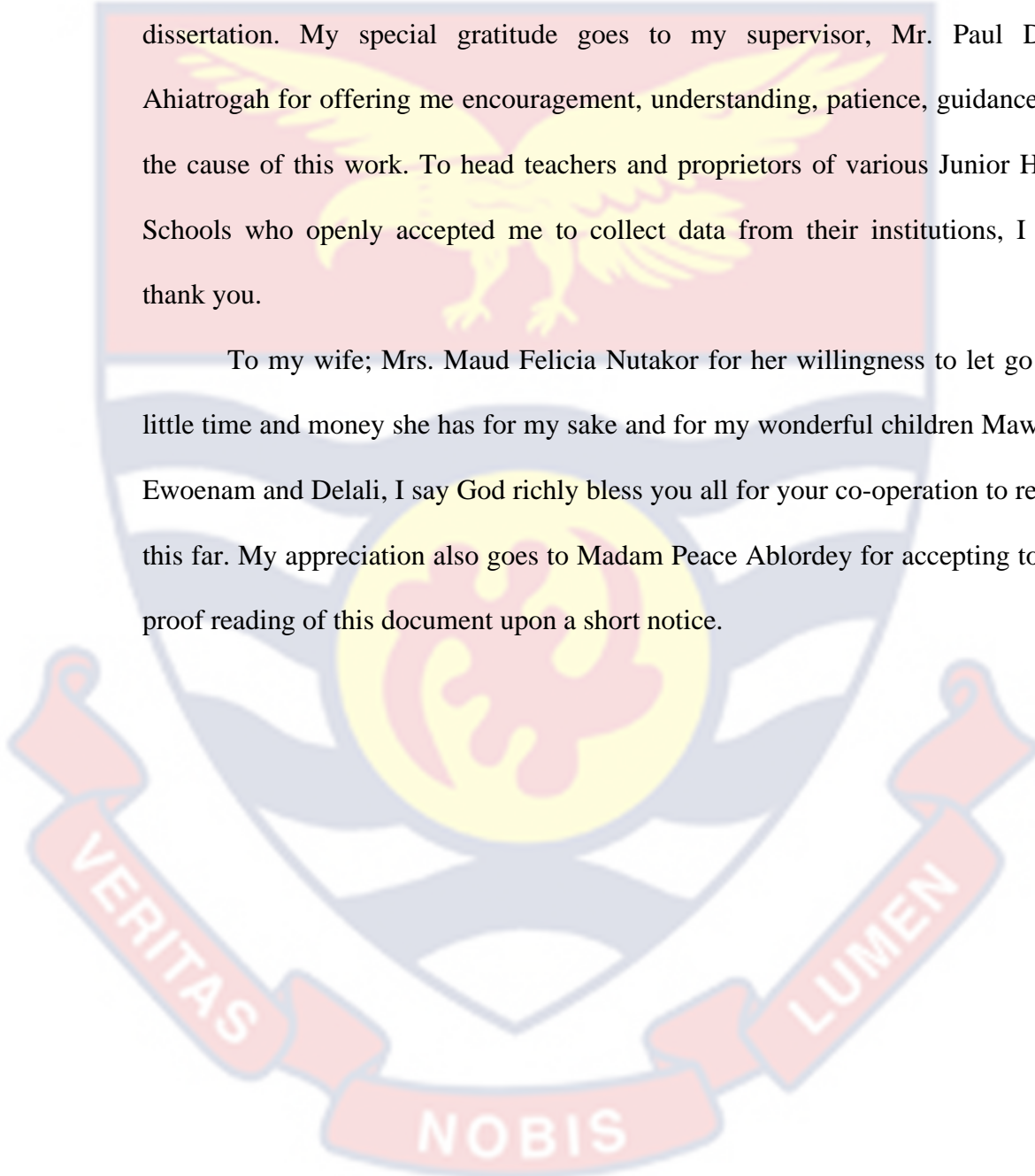
The purpose of this study was to ascertain the attitude of Junior High School pupils in general and the gender aspect towards the study of Information and Communication Technology (ICT) in selected schools in the Cape Coast Metropolis. Descriptive research design was employed in this study and questionnaire was the main tool used to collect data from two hundred and three (203) pupils. The respondents were purposively drawn from three private and four public schools located in the Efutu, Pedu-Abura and Aboom circuits in the Cape Coast Metropolis. The schools were located in either urban or rural areas of the Metropolis.

The Predictive Analytics Software (PASW) version 18 for Windows was used to analyse the data collected using frequencies, percentages, means, standard deviation and independent t-test were used to analyse the biographical data, research question one and testing of the three formulated hypotheses. The findings of the study revealed that pupils have much positive attitude towards the study of ICT and there is a significant difference in attitude between pupils in rural and urban area schools towards the study of ICT. There is no significant difference in attitude of male and female pupils as well as that of public and private Junior High Schools.

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To my wife; Mrs. Maud Felicia Nutakor for her willingness to let go the little time and money she has for my sake and for my wonderful children Mawuli, Ewoenam and Delali, I say God richly bless you all for your co-operation to reach this far. My appreciation also goes to Madam Peace Ablordey for accepting to do proof reading of this document upon a short notice.



DEDICATION

To my mother Awusi Gbedemah for nurturing me into what I am today.

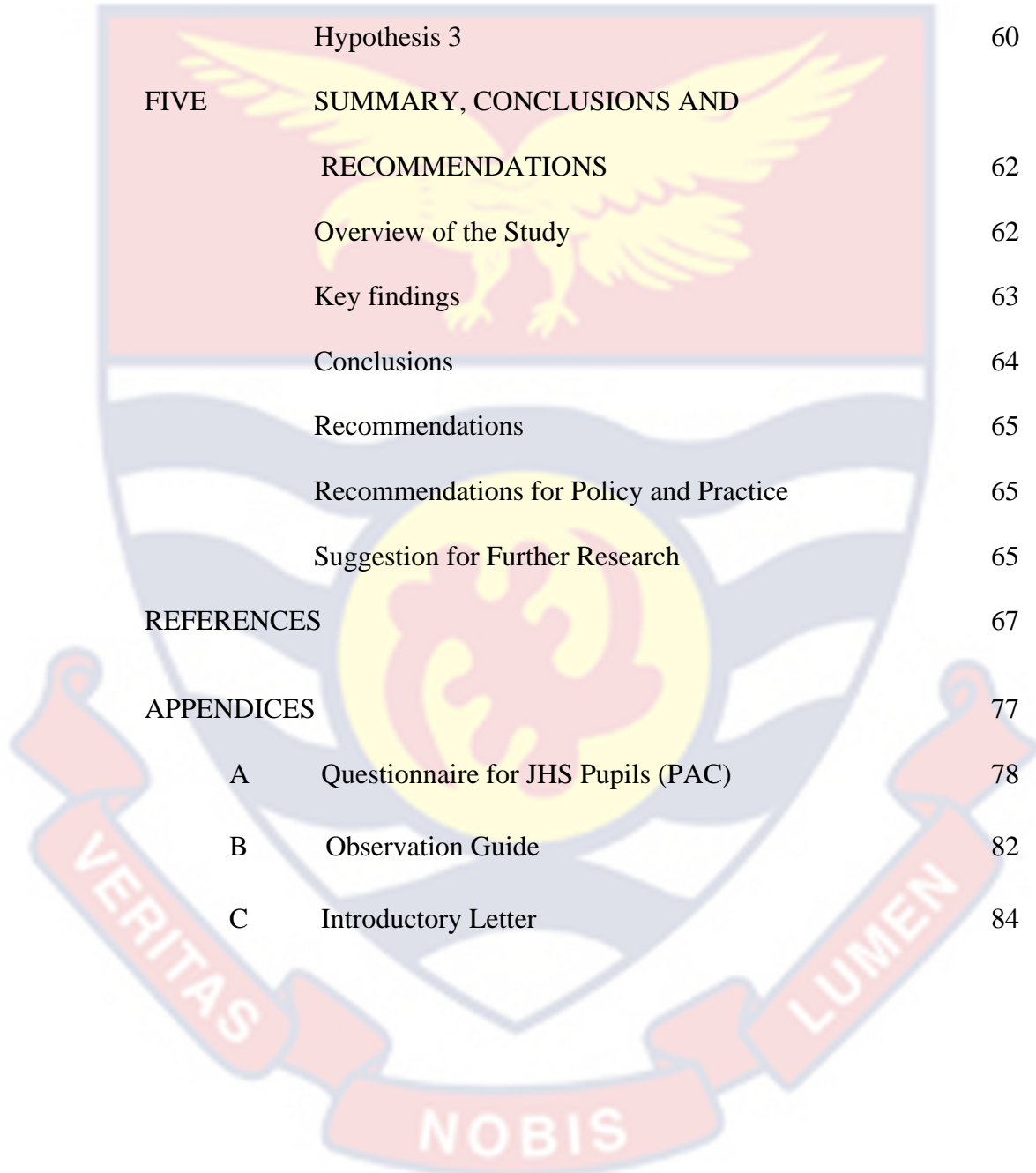


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CHAPTER ONE

INTRODUCTION

Background to the Study

Education in general is the dissemination of ideas, concepts and principles among others to the door steps of those who have no idea of such details. The prime aim of educating somebody is to open that person's mind to issues which will help him/her in making informed choices. The choice, once made will empower him/her to bring about development and improvement in all aspects of his or her life.

According to data from the Online Computer Library Centre (OCLC) Public Affairs Information Service based on a recent European Commission Report (2001); a third of the world's population has never made a phone call. This fact emphasises what has become known as the digital divide – the tremendous gap between people with access to information technology (IT), and those without. Not long ago, IT to most people signified computers (Martínez-Friás, 2003).

To Martínez-Friás; the rapid and ongoing change in the IT world, computers and communication systems such as telephones and modern fax machines are increasingly using the same technology. Information and communications technologies (ICTs) is an umbrella term which is currently used

to refer to a wide range of services (telephony, fax, internet), applications (such as distance education and management information systems), and technologies (anything from 'old technologies' such as television to 'new technologies' such as cellular phones), using various types of equipment and software, often running over telecoms networks (Martínez-Friás; 2003).

The ICT (or information, or communications, or microprocessor) revolution is radically affecting the way we share information about development issues; and governments, NGOs, businesses, institutions, and individuals have jumped on the bandwagon to make ICTs part of their day - to - day organisational processes. Moreover, the revolution brings leverage in the two essential commodities of time and distance, which in business terms translate into efficiency and cost. The issue of transparency is easier to manage with ICTs, which may result in monetary savings in addition to stakeholder confidence in development processes and systems. However it is also true that if care is not taken to ensure that ICT provision and use is tailored to the specific needs of the groups that really need them, there is a danger that existing alienation and marginalisation will be reinforced and increased (Jackson, 2009 cited in Martínez-Friás, 2003).

There is general agreement that ensuring access to the fundamental tools of the digital society is one of the most significant investments the world can make for the future, but the world's most valuable resource is its people. Thus, the significance of ICTs is not in the technologies as such, but in the possibilities they open up for access to knowledge, information, and communications, elements of

ever increasing importance in present day economic and social interaction. While some of the issues surrounding ICTs have similarities with those in other areas of infrastructure, such as roads, postal services, and railways, others are of course different and highly specific, with the potential to produce differential development of local and global cultures.

It was estimated that by year 2003, almost all decisions made in science and technology, economics, and business development will be based on information that has been generated electronically. Access to information is thus a key factor in the generation of wealth and there is a strong link between a nation's level of development and the level of technological uptake. Governments are the main actors here, and they need to proceed in partnership with the key stakeholders in ICT provision – including existing and possible future carriers, internet service providers, high technology companies, business users, educators, bankers, and community groups – in order to ensure that a comprehensive system is put in place (Martínez-Friás, 2003).

The introduction of Information and Communications Technology (ICT) into the curriculum of Ghana for both public and private schools encompassing the first and second cycle institutions in 2007 (Michayahu, 2010), is to complement other subjects for a holistic development so that those who avail themselves to formal education will derive the maximum benefits from it.

The rapid and efficient growth of industries in the twenty-first century depends largely on technology and ICT. Medicine, military, industries, agricultural sectors among others have a strong link to ICT. It is in view of this

that the recent developments in computer skill and knowledge have become a factor in the recruitment of prospective employees.

The introduction of ICT in the first cycle institutions which is the foundation of education in Ghana is welcome news, in the sense that before these pupils are ready for the job market, they might have gained enough knowledge and the necessary skills in computing.

ICT is so important in the world today that it makes it imperative for every young person to be competent in the use of ICT for the many tasks that he/she will have to accomplish Curriculum Research and Development Division (CRDD, 2007). This was the rationale around which the Junior High School syllabus has been designed to help in the teaching and learning of ICT in Ghana.

In 2007, the government of Ghana and China signed a loan agreement of RMB 250.0 million Yuan (USD 30.0 million). The amount was to develop the first phase of the Ghana National Communications Infrastructure Backbone Project which is to help facilitate the penetration of ICT infrastructure in the country (Concessional Loan agreement between Ghana and the Export-Import Bank of China, 2007). Investing in ICT education in terms of computer skilled teachers (to help teach the subject), textbooks, infrastructure and supply of computers can be justified if only pupils who are the end beneficiaries have positive attitude towards the study of the subject.

However, if the needed infrastructure is in place and schools are supplied with computers and their accessories as well as the accompanying software and

the end beneficiaries (pupils) seem to have negative attitude towards the study of the subject; then the investment in ICT infrastructure and the idea of introducing ICT into the basic school curriculum others would be defeated.

Statement of the Problem

In observing and talking with pupils studying ICT in Christ Church Anglican Junior High School (JHS) for about four years; I became convinced that most of the pupils do not find the study of ICT an important subject to be studied. It seems majority of these pupils were simply frustrated and confused about the introduction of the new subject (ICT) into the curriculum. They saw it as an additional burden which has come to compound the existing problem they have to battle with simply because the existing subjects in their school curriculum are enough problems on their own.

The recent Basic Education Certificate Examination (BECE) result released by the West African Examinations Council (WAEC, 2011) in July, 2011 showed that only a few pupils passed ICT very well. The result as published by West African Examinations Council (2011), showed that in School A (name withheld), a total of fifty-six pupils were presented for the BECE. Seven pupils representing 12.50% obtained grades 3 to 5 and forty-nine pupils also obtained grades 6 to 9 representing 87.50%. In terms of gender, four males (7.14%) had grades ranging from 3-5; and three females had grades ranging from 3-5 (5.38%); fourteen males (25%) had grades ranging from 6 to 9 and thirty-five females obtained grades ranging from 6 to 9 (West African Examinations Council, BECE

Results, 2011). It is clear from this that over 80% of the pupils failed, and this is an indication that there is a problem.

Many researches done in the past have not addressed the issues on students' attitude towards the study of ICT in rural - urban and public - private schools in Cape Coast Metropolis. Clearly, this is an indication that there is a knowledge gap that needs to be bridged.

It was for this reason that the researcher embarked on this research to investigate and find out the kind of attitude pupils have towards the study of ICT in the urban - rural areas as well as public - private schools located in the Cape Coast Metropolitan Assembly. The study therefore, was carried out in some selected JHS in the urban, rural, public and private schools in the Cape Coast Metropolis to find out the prevailing situation on the ground.

Purpose of the Study

The purpose of this study is to investigate the attitude of pupils towards the study of Information and Communications Technology in selected public, private, urban and rural JHS in Cape Coast Metropolis. Also the study is to find out the attitudinal relationship that exists in the study of ICT with regard to gender.

Research Question and Hypotheses

The following research question and hypotheses served as a guide in finding the attitude of JHS pupils towards the study of ICT in the Cape Coast Metropolis of the Central Region of Ghana.

Research Question

1. What is the attitude of pupils towards the study of ICT at the JHS?

Research Hypotheses

1. H₀: There is no significant difference between the attitudes of rural and urban pupils towards the study of ICT.
H₁: There is a significant difference between the attitudes of rural and urban pupils towards the study of ICT.
2. H₀: There is no significant difference in attitude between male and female pupils in studying ICT in JHS.
H₁: There is a significant difference in attitude between male and female pupils in studying ICT in JHS.
3. H₀: There is no significant difference in the attitude of pupils between public and private school pupils towards the study of ICT in JHS.
H₁: There is a significant difference in the attitude of pupils between public and private schools pupils towards the study of ICT in JHS.

Significance of the Study

If attitude, which influences human action, was not right, whatever the government and other stake holders may do by way of investing money and time in the study of ICT would amount to nothing. Therefore, researching into pupils' attitude towards the study of ICT would be of enormous benefit to the pupils, the

subject teachers, parents and policy makers to know what actually is prevailing on the ground.

It would also serve as a guide when planning and designing any material related to the study of ICT at the JHS level to support teachers who would be implementing the contents of the syllabus to achieve its intended learning outcomes.

Finally, the finding(s) from this study would add to the existing body of knowledge which can serve as a source of reference to subsequent studies.

Delimitation of the Study

This survey was restricted to only form two pupils in urban-rural and public-private Junior High School (JHS). There were seven schools which were used instead of all the JHS schools in the whole Metropolis to determine their attitude towards the study of Information and Communications Technology (ICT).

The JHS form three pupils were not used as sample for the study; although they have relatively more exposure to the study of ICT in terms of hourly contacts of about 11,340 hours (16.785months) as compared to about 7,560 hours (11.25months) in the case of JHS form two pupils. The JHS 3 pupils would have been writing their Mock examinations in preparation to BECE in April, 2012. Therefore, anybody wanting to collect any data from them after the publication of this research work around that time may not get any reliable co-operation from them and this may affect the data collected.

In addition to the above, by the time the research report is ready they might have finished school in April, 2012 and if anybody wants to verify this

study he/she would find it difficult in having access to them since most of them might have completed school.

The JHS form one pupils were not chosen for the study because they have relatively little exposure (3,780 hours; 5.625months) in studying ICT as compared to the JHS form two and JHS three pupils; hence, they may not provide the needed responses for the study.

Limitations of the Study

The study was done in Christ Church Anglican, St. Nicholas Anglican JHS, Ayifua St. Mary Anglican Junior High Schools (JHS) which are public-urban schools. Sir Holdbrook-Smith International and Golden Treasures JHS are Private – urban schools and the rest were St. Cyprians Anglican JHS (public – rural school) and Tuwohofo Holy International JHS (private – rural school). The schools are in Aboom and Pedu-Abura Circuits in the Cape Coast Metropolitan Assembly area.

The seven selected schools for the study are far apart; hence, the time that was used in collecting the data from the respondents in each school was not the same. Having access to pupils to respond to the questionnaires took some time since this was done early in the morning on two occasions, during break time and just after closing of school. The total number of pupils (boys and girls) was less than thirty (30) in some of the schools and in some cases, either boys or girls were less than fifteen (15). For instance, Sir Holdbrook Smith International JHS had

twelve (12) boys and fourteen (14) girls and St. Cyprians Anglican JHS had fifteen (15) boys and fourteen (14) girls.

The study had suffered other setbacks in that some of the respondents have withhold some information while responding to the questionnaires and also some relevant observable behaviour might not have been portrayed during the observation. These situations might have marginally affected the result of the study but not to the extent that the entire finding(s) cannot be relied on.

Definition of Terms

The following are the operational definitions of terms used in this study:

Attitude: Krueger and Reckless (1931) defined attitude as a residuum of experience which conditions and controls further activity. Martorella (1985) opines that attitudes are clusters of related beliefs that express our likes and dislikes, general feelings and opinions about some individuals, groups, objects, or events.

ICT: (Information and Communications Technologies). It is defined, as a “diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information.” (Tinio, 2003, p. 4).

Circuit: Cluster of schools which are put in groups for easy administrative purposes from education directorate of Ghana.

Pupils: children of school going age who are yet to finish Junior High School.

Public Schools: Schools that are supported by the State in terms of teachers, classroom infrastructure, textbooks and other materials to make teaching and learning meaningful.

Private Schools: Schools that are not supported by the State to provide teachers, classroom infrastructure, textbooks and other materials to make teaching and learning meaningful. Instead, parents and owners of the school help in providing the necessary teach aids and school blocks.

Urban Area: a town or city which is relatively developed where accessibility to social amenities are readily available including decent classrooms, electricity, textbooks, and qualified teachers are enough.

Rural Area: village and mostly farming community where qualified teachers do not want to stay and work. Classrooms, textbooks and furniture are not enough for use in schools in these areas.

Organisation of the Rest of the Study

The study is organized into five chapters. The chapter outlines the introduction to the study, background to the study, statement of the problem, purpose of the study, research question and hypotheses, significance of the study, delimitation of the study, limitation of the study as well as the definition of terms.

Chapter two covers the review of related literature; chapter three consists of the research design, population, sample and sampling procedure, instruments, internal validity and reliability of the instruments, pilot-testing of instruments,

data collection procedure and data analysis. Chapter four looks at the analysis of data collected and discussions on the data analysis. The final chapter consists of the summary, conclusions, recommendations for policy and practice as well as suggestions for further research.



CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This chapter focuses on the review of related literature that provides a framework for the study - Attitude of Pupils towards the Study of Information and Communications Technology (ICT). The chapter discusses issues such as, conceptual base of the study, attitude formation as well as attitude towards the study of Information and Communications Technology and accessibility of computers to enhance the study of ICT. Also, it looks at the effect of gender in studying ICT in school, Impact of practical work with computer in teaching ICT and employment opportunities associated with ICT.

Conceptual Base of the Study

The Theory of Planned Behaviour

There have been a number of studies conducted over the past years which have utilised the theory of planned behaviour in an attempt to understand peoples' intentions to engage in a number of activities. These studies have been quite diverse and have included activities such as hunting, weight loss, engagement with leisure activities, likelihood of committing traffic violations, willingness to vote and voting choice and gift giving (Abelson, Kinder, Peters & Fiske, 1982; Ajzen & Timko, 1986; Ajzen & Driver, 1991; Hrubes, Ajzen & Daigle, 2001).

These studies indicate that the application of the theory of planned behaviour deals with the antecedents of attitudes, subjective norms and perceived behavioural control. These antecedents determine intentions and actions. The research suggests that human action is influenced by a favourable or unfavourable evaluation of the behaviour (attitude towards the behaviour), perceived social pressure to perform the behaviour (subjective norm) and perceived capability to perform the behaviour (perceived behavioural control)(Siragusa & Dixon, 2008). In combination, attitude, subjective norm and perceived behavioural control lead to the formation of a behavioural intention (Ajzen & Fishbein, 1980). In general, the more positive the attitude towards performing the behaviour, along with substantial levels of social pressure to do so and perceived control over one's actions, the more likely the individual is to carry out the behaviour.

Often behaviours pose difficulties with regard to execution. In this way it is useful to consider perceived behavioural control in addition to intention. How realistic people are in their judgements of the level of difficulty associated with behaviour, therefore depends on the measure of perceived behavioural control can serve as a proxy for actual control and as such can contribute to the prediction of the behaviour in question. When applied to the engagement with ICT, the theory of planned behaviour suggests that an intention to engage and interact with a particular program or software element is influenced by attitudes towards ICT; perceived social pressure to do so and by perceptions of control over the interaction. The major components of the Theory of Planned Behaviour as designed by Ajzen and Fishbein (1980) are presented in Figure 1.

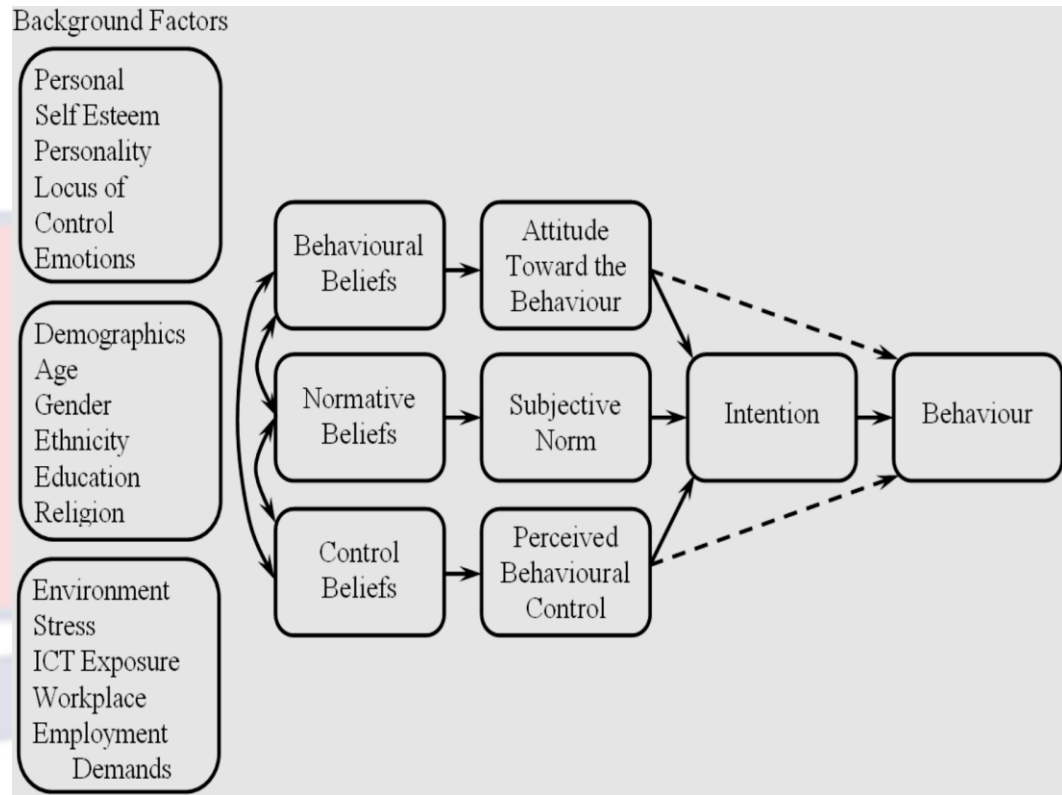


Figure 1: Theory of planned behaviour: (Ajzen & Fishbein, 1980)

Ajzen and Fishbein (1980) have identified three categories of Background Factors among which were personal self esteem, personality, locus of control and emotions as the first category. The second category has elements like demographics, age, gender, ethnicity, education and religion. Environment, stress, ICT exposure, workplace and employment demands as the elements of the third category.

Ajzen and Fishbein (1980), are of the view that the various elements in the Background Factors contributes to another set of beliefs of the individual (Behavioural beliefs, Normative beliefs & Control beliefs) as shown in Figure 1. Behavioural beliefs, Normative beliefs and Control beliefs are connected to each other in a way, in other words they have a relationship with each other.

According to the Planned Behaviour Theory propounded by Ajzen and Fishbein (1980), Behavioural Beliefs determine Attitude towards the Behaviour; Normative Beliefs also lead to Subjective Norm while Control Beliefs result in Perceived Behavioural Control. Behaviour is formed from Intention and Intention come from Attitude towards the Behaviour; Subjective Norm and Perceived Behavioural Control. This is shown diagrammatically in Figure 1.

In a study done by Siragusa and Dixon (2008), using the Planned Behaviour Theory in Curtin University of Technology; they have found that in overall; the students believed that interacting with ICT was pleasant, helpful and easy. This is an indication that the Theory has been tested by others in studying the attitude of pupils or students towards the study of ICT. This is the reason why I also want to test this theory and using it as the theoretical framework for this particular study to find out the attitude of pupils in selected JHS.

Attitude Formation

According to Cambridge International Dictionary of English (1995), attitude is a feeling of opinion about something or someone. Historically there has been much psychological research undertaken in the area of attitude and attitude formation. Common findings in the research revealed that attitudes and beliefs are linked, attitudes and behaviour are linked and attitudes are essentially likes and dislikes (Siragusa, Kathryn & Dixon, 2008). Bem (1970) maintains that our affinities for and aversion to situations, objects, persons, groups or any other identifiable aspects of our environment, have roots in our emotions, behaviour and social influences upon us.

The word attitude connotes a subjective or mental state of preparation for action. Attitudes find their roots in our beliefs and they influence our behaviour. They represent the way in which we view the world and organise our relationships. Attitudes are literally mental postures and guides for conduct to which each new experience is referred before a response is made (cited in Siragusa, Kathryn & Dixon; 2008).

Droba (1933) described an attitude as a mental disposition of the human individual to act for or against a definite object. Krueger and Reckless (1931) defined attitude as a residuum of experience which conditions and controls further activity. In this way they can be viewed as acquired tendencies to act in specific ways, towards or against an environmental factor which is imbued with either negative or positive value.

More recent research indicates that attitude represents a summary evaluation of a psychological object and is described both internally and externally in dimensions such as good-bad, likeable-dislikeable, harmful-beneficial, pleasant-unpleasant (Ajzen & Fishbein, 2000; Chaiken & Eagly, 1993).

All of the above definitions imply a preparation, or readiness for response based on experiences and attitude formation that had occurred prior to the stimulus. If this is the case, students who are approaching an interaction with elements of an online learning program such as an animation may have already based their attitudes towards the experience on past interactions such as formal learning situations which incorporate information communications technology

(ICT) as well as the abundance of such technologies available on a daily basis through media in general (Siragusa, Kathryn & Dixon, 2008).

Students' attitude may also be influenced by their perceptions of the relationships between the sometimes conflicting dimensions of the visual representation before them (Siragusa, Kathryn & Dixon, 2008). If Krueger and Reckless (1931) are correct, the expectations of the sample towards their interaction with the technology should match the eventual development of the attitudes they hold regarding its components. Despite this, I hold the view that environmental factor can act as a single contributor to attitude formation.

Critchfield, Krech and Livson (1958) describe attitudes as comprising three main components: the cognitive, the affective and the behavioural. The cognitive component categorises the individual's ideas and beliefs regarding an event or object. This cognitive category must also become associated with either a basically pleasant or unpleasant event. This results in the category becoming charged with meaning and a behavioural pattern develops. Behavioural patterns may have already developed in the sample towards interaction with technology (Siragusa, Kathryn & Dixon, 2008). I have the opinion that a person can have the urge of developing either positive or negative attitude from the mere fact that a person sees or observes the use of technology.

Human beings constantly search for meaning and categorising events and environments is one way of doing exactly that. Fine discrimination of the environment is beyond the capacity of human attention so individuals treat many

discriminated stimuli as instances of the same phenomenon (Critchfield, Krech & Livson, 1958, p. 101).

Language plays a key role in labelling categories and their attributes. Similarly, each label may be denoted differently and the meaning changed accordingly. The affective component is the result of the changing of a category. Once a category has been formed, it becomes associated with meaning and therefore represents either a favourable or unfavourable state. The behavioural component comprises beliefs regarding the correct behaviour towards members of a particular category (Siragusa, Kathryn & Dixon, 2008).

Over a period of time and following a series of experiences students develop either favourable or unfavourable feelings associated with certain interactions. These feelings or 'states' may well form the basis of their attitudes towards their own self conceptualisation of the use of (ICT) as a means of enhancing learning (Siragusa, Kathryn & Dixon, 2008).

According to Brendl and Markman (2000) people evaluate objects in relation to currently active goals. The life cycles of particular goals are dependent upon beliefs and values and the influence of significant others. Human beings therefore, experience a positive reaction or attitude towards objects or events that assist in the attainment of their personal goals, and negative reactions and attitudes towards objects or events that in some way hinder the attainment of desirable outcomes.

Attitudes are often designated as being the result of several major influences. The social group to which the individual belongs is perhaps the most

influential. In this way, both the group to which the individual belongs and the groups to which he/she aspire to belong, exert an enormous pressure and influence on attitude development. Students' attitude towards ICT which emerged through the interaction with the animation utilised in the current research may have been determined through collaborating with peers, the administration of the project, and the influence of academic staff towards its conceptualisation (Siragusa, Kathryn & Dixon, 2008).

The idea that attitudes function to evaluate psychological objects would appear to imply that individuals hold only one attitude towards a given object at any one time. Recent research indicates however, that this is simplistic and that when attitudes change, the new attitude may override but not completely replace the old attitude (Siragusa, Kathryn & Dixon, 2008).

Lindsey, Schooler and Wilson (2000) suggests that a model of dual attitudes is a more realistic conceptualisation in that people can hold two different attitudes towards an object at any given time. Lindsey, Schooler and Wilson (2000) posits that while an individual is capable of interacting with two attitudes at once, one can be viewed as implicit while the other operates more manifestly as explicit in expression. The implicit attitude is understood to be automatically activated when the individual is presented with an attitude object while the explicit is more likely to require cognitive effort (Siragusa, Kathryn & Dixon, 2008).

A number of studies of prejudicial attitudes revealed that while implicit attitudes could emerge towards a particular race of people for example, explicit

attitudes could override these reactions under the influence of group norms and with access to cognitive resources. In such a way more favourable attitudes could be retrieved (Bargh & Chartrand, 1999).

Lindsey, Schooler and Wilson (2000) found that implicit attitudes exerted more influence than explicit attitudes over involuntary non-verbal behaviour signalling discomfort such as excessive blinking, avoidance of eye contact and spatial distance. During life, experiences lead to the formation of many different beliefs about objects, actions and events. These beliefs may be the result of direct observation or inference. Some attitudes may be stable over time, others may exhibit frequent shifts (Siragusa, Kathryn & Dixon, 2008).

According to Ajzen and Fishbein (1975), a person's attitude towards an object is primarily determined by no more than five to seven beliefs that are salient at any given time. It appears impossible to obtain a precise measure of the beliefs that determine an individual's attitudes, since the number of salient beliefs may vary from person to person. However an approximation can be obtained by considering the first few beliefs.

Ajzen and Fishbein (1975) postulated that attitudes are inextricably linked to and based upon beliefs and the evaluative responses associated with those beliefs. Ajzen and Fishbein (2000) went further to infer that evaluative meaning arises spontaneously and inevitably as we form beliefs about an object. Each belief associates the object with a certain attribute which is embedded in context, culture and memory.

According to Haugtvedt (1997) and Barone and Miniard (1997) beliefs are only one possible influence on attitudes. Zajonc (1980) had already indicated in earlier research that attitudes may also be controlled by affective processes. This is a position which is supported by the work of Hofstee, Janssen and Verplanken (1998) who suggests that evaluative response times were less for those participants being asked how they felt as opposed to how they thought about attitude objects.

The study by Hofstee, Janssen and Verplanken (1998) indicated that the affective aspects underlying attitudes are more easily accessible in memory and it may be that these aspects play a larger role in the formation of attitudes than previously thought. It then becomes a lengthy task to alter a person's belief system and this clearly must occur over time. Ajzen and Fishbein (1975, 1980), Ajzen and Driver (1991) worked further towards the development of the theories of reasoned action and planned behaviour as a means of explaining, predicting and changing particular behaviours.

These theories have resulted in a useful conceptual framework which has at its centre the roles of beliefs, attitudes, norms, perceived behavioural control and intentions as crucial indicators of particular behaviours. Reasoned action is best described as a process by which an individual arrives at an intention.

According to Ajzen and Fishbein (2005), behavioural intentions are thought to result from beliefs about performing the behaviour. Behavioural, normative and control beliefs that people hold about performing a certain

behaviour are influenced by a range of background factors such as personality, mood, values, education, ethnicity and gender amongst others.

The central premise of the model concerns the group of effects that start with the development of behavioural, normative and control beliefs. These in turn directly influence the formation of an attitude towards the behaviour, the subjective norm and perceived behavioural control which then produces intention (to behave) and the behaviour itself. Individuals who utilise this process are said to have engaged in reasoned action (Ajzen & Fishbein, 2005).

While it is understood that shortcuts can be made in this process, it is also accepted that over certain periods of time, attitudes, norms, perceptions of control and intentions are rehearsed and therefore become readily accessible to each individual. In this way a previously formed attitude towards interacting with technology for example, can be readily accessed without the need to debate all the perceived advantages and disadvantages of doing so.

Zanna and Rempel (as cited in Haddock & Zanna, 1993) have suggested that an attitude be viewed as an overall evaluation of a stimulus object which is based on affective, cognitive, and behavioural information. I am of the opinion that environmental factors surrounding a particular individual at given time can contribute to attitude formation towards a particular direction (positive or negative).

An attitude can be viewed as an overall categorization of a stimulus object along an evaluative dimension. The process of evaluation is viewed as being

based upon three general sources of information: (i) cognitive information (example, beliefs about the attitude object), (ii) affective information (example, feelings about the attitude object) and (iii) information concerning past behaviours or behavioural intentions Zanna and Rempel, (as cited in Haddock & Zanna, 1993).

In addition, Zanna and Rempel (1988) have stated that consistency across the different sources is not necessary (implying that they are to some extent independent), and that an individual may have more than one attitude toward a stimulus object (if, over different occasions, the evaluative judgment is based on different sources of information).

Attitude towards the study of Information and Communications Technology

In a study by Siragusa and Dixon (2008) to find out the attitude of students towards the study of ICT revealed that students believed interacting with ICT was pleasant, helpful and easy. Also, the study found that students have feelings of anxiety and intimidation when working through the ICT interaction. It can be deduced from this study that students have much interest in studying ICT and might be doing better in the subject at school.

Rashid and Riaz (2003) carried out a study in Allama Iqbal Open University have concluded that most of the student's have positive attitude towards ICT and may easily accept better and advanced way of learning. These conclusion arrived at which was backed by statistics can help the authority of what placement and ability grouping students can be fitted into.

In a study conducted by Balanskat, Blamire and Kefala (2006) in Finland, Denmark, Norway and Sweden indicated that ICT has a positive impact on pupils' learning. In the question 'does ICT improve pupil performance', two in three teachers report that there has been an improvement in their pupils' subject-related performance and their basic skills (calculation, reading and writing). Only the Finnish teachers' experiences are less positive and many think that ICT has no impact. The finding from this report showed that students from Denmark, Norway and Sweden have positive attitude while students in Finland have negative attitude towards the study of ICT. If their attitude had not been positive it would have not reflected in their performance in other subject areas as positive impact. In the case of Finland, that is why their performance was reported as negative.

A study in Slovak elementary schools by Fančovičová and Prokop (2008) found that Attitudes toward ICT were positive and gender differences were weak. Although they found that school had an effect on the behavioural dimension of attitudes, it was not caused by the accessibility of computers per se. However, large numbers of students per computer (up to $N = 68$) greatly reduced student's use of computers at schools. Lack of internet connection at home caused greater Supplement of internet-related activities in schools relative to home. Gender and age-related differences in ICT participation were greatly influenced when comparing the home and school environment.

Bovee, Voogt, and Meelissen (2007) investigated computer attitudes of 240 students from eight primary and secondary schools in South Africa. The student population of six of the eight schools that participated in the study can be

characterised as middle or upper class. Two schools were from South African townships. All eight schools used computers for educational purposes, although the availability and use of the computers differed. In contrast to most studies on gender differences and computer attitudes, no gender differences in computer attitudes were found. However, this study showed differences in computer attitudes between students from the upper/middle class schools and students from the township schools. The latter showed a less positive attitude towards computers, but more interest in computer-related careers compared with the students in the upper/middle class schools. The study found that computer access and experience, which was significantly lower in the township schools, was also related to computer attitude. In line with the view that the more access to computers, there is a positive correlation in positive attitude towards the study of ICT among the students in the township (urban areas).

A paper presented in Hyatt Regency Orange County, Anaheim at the annual general meeting of the Association for Educational Communications and Technology (AECT) by Adentwi, Amartei, Brefo and Sarfo (2010) noted from their study which explored the attitudes of male and female students in Ghana towards ICT. The results showed that students' attitude toward technology do not differ in terms of gender. Furthermore, the results indicated that the locality (rural or urban areas) of the male and female students does not influence their attitudes towards technology. However, according to the results female students from urban areas have more positive attitudes towards technology than female students from rural areas.

Accessibility of computers to enhance the study of ICT

Several researches indicate that lack of accessibility to resources such as computers is a barrier to the teaching and learning of ICT in schools. Sicilia (as cited in Bingimla, 2009) noted that teachers complained about how difficult it was to have access to computers. The author cited an example like booking computers in advance to be used and if this is not done then it means the ICT lesson would not come off.

According to the British Educational Communication and Technology Agency (BECTA) (as cited in Bingimla, 2009), the inaccessibility of ICT resources is not merely due to the non-availability of the hardware and the software or other ICT materials within the school. This implies therefore that having access to the mere hardware at home and school is of no benefit to the learning of ICT.

Empirica's (2006) European study found that lack of access is the largest barrier and that different barriers to using ICT in teaching were reported by teachers; for example a lack of computers and inadequate materials. Similarly, Korte and Husing (2007) found that in European schools, there are some infrastructure barriers such as broadband access not yet being available. They concluded that one-third of European schools still do not have broadband internet access.

In a study done in twenty-six (26) countries by Pelgrum (2001) noted that insufficient numbers of computers, peripherals, software among others are not

enough in schools. This is a draw back on having everybody especially pupils to the learning of ICT in schools. A-Alwani (2005) also found out from his study in Saudi schools that having access to the internet during school hours and lack of computer hardware were impeding technology integration in schools.

In a study done in Scottish schools by Condie, Collins, Munro and Muir (2005) it was indicated that access to computers out of school reached over 90% for teachers, pupils and co-ordinators, an increase over previous figures. However, there remain small but educationally significant numbers of pupils and teachers who do not have access out of school.

According to Condie, Collins, Munro and Muir (2005) most of the home computers were connected to the Internet, many by broadband. The difference identified in the earlier phases, where teachers were more work-oriented while pupils tended to experiment and play out of school, was also in evidence in this third phase. There is continuing evidence that much learning is taking place out of school and the opportunities for accessing a range of technologies in the home are increasing. The emphasis seems to have moved from computers to the range of peripherals that enable people to use their computers for a variety of purposes and more creatively, example digital cameras (still and video), mobile phones, (MP3) players.

In school, the use of computers within the classroom to support learning was very patchy, with small percentages of pupils experiencing this on a regular basis. Word processing, graphics and searching the Internet dominated. Much of

this activity was concerned with writing essays or reports and producing presentations. Most primary schools have a number of computers for pupil use in the classroom as well as a computer suite/lab that can be booked. When computers are readily available, they tend to be used throughout the day and for a variety of purposes, becoming a relatively routine part of the day-to-day activities of the classroom.

In a study by Marshall and Bannon (1986) it was noted that twice the proportion of rural (42%) as urban (20%) teachers indicated that their students had daily time on computers in the classroom. Similarly, a significantly greater proportion of rural students (60%) than urban students (49%) said they had a home computer. There was no relation between rural-urban classification and the proportion of educators who had home computers. Nearly two-thirds of the educators indicated that they had some type of computer at home. It should be noted that these home computers included both the "personal-type" hardware and the "game" machines. I think this is a nice learning situation which learners would take advantage of by learning the needed computer skills as well as positive attitude towards the study of ICT.

Gender and its relationship in studying ICT in school

In Belgium, a study conducted by Broos (2005) revealed that males do not have anxiety in the use of computers for that matter ICT but the opposite is for their female counterparts. Also, females have more negative attitudes towards computer and internet while the males have positive attitude towards the use of

computers and the internet. Having positive anxiety towards ICT is to say that the students have positive attitude towards the study of ICT or the other way round.

In a study done by Kaino (2005) in Gaborone which is in Botswana, had noted that more girls than boys found computers to be more useful. Gender differences on usefulness of computers in learning were noted among students where many boys found computers to be useful in searching for jobs, whereas many girls found them useful in internet access. At the time of conducting the study, students (in form two) were expected to have covered knowledge in basic computer skills that involved keyboard skills, creating new documents and editing; word process and spreadsheet. The syllabus used at this level looked more general in design and reflected the responses of students who could not specify the usefulness in particular content areas of study. However, students' views that computers were useful could be considered as an appreciation of the use of technology in learning.

An earlier study in a number of schools in Botswana showed that students did not consider the use of calculators to be useful in learning (Kaino & Salani, 2004). Such a finding could be regarded as a setback at the time when traditional ways of instruction were to be innovated and improved to cope with current developments in technology. Studies on students' perceptions on the usefulness of technology have been linked to participation in the subject studied. In mathematics for example, students' perceptions on usefulness were associated with activities and tasks performed in class (Koehler & Meyer, 1990). The findings also indicated that both boys and girls enjoyed working on computers in

class. Enjoyment in using computers could also have been influenced by students' perceptions on the usefulness of computers. Enjoyment in learning has been associated with the value students attributed to the subject studied. This also confirmed the study by Kuln (1980) which indicated that students enjoyed subjects they valued. I have the conviction that this holds for all other subjects with the view that if a person's appreciation is not with an object or a person then, there would not be any form of attraction to it. This can be enough ground to generate a kind of behaviour which can be positive or other wise.

In a work by Kaino (2005) in Botswana, it was found that boys' enjoyment learning using computers more with less or no anxiety than girls. Anxiety found by this study among girls was related to less enjoyment (than boys) that could lead to less confidence and interest in learning and using computers. Though gender differences existed in usefulness, enjoyment and anxiety, there were indications that students had the opportunity to work independently, discover and create knowledge.

It was also realised from the findings that provision of equal facility to both sexes in the same classroom environment could not necessarily mean equal access opportunities to learning. While the findings of this study could not be generalized to reflect gender attitudes in all schools, it was felt that attention should be drawn to the following for further study: (i) the nature of computer studies curriculum that targeted particular content areas where learners could identify as useful, (ii) exploration of areas (in computer studies content) that could motivate students (especially girls) to enjoy learning using computers, (iii)

teaching using computers that involved particular activities and exercises (from identified content areas) that could motivate girls to feel comfortable in learning and enjoying computer lessons without anxiety and (iv) exploration of girls' learning styles, attitudes, and behaviours in class.

Impact of practical work with computer in teaching ICT

A research project conducted by the British Educational Communication and Technology Agency (BECTA, 2003) on behalf of the Department for Education and Skills (DfES) investigated the effects of ICT on educational attainment, based on evidence gathered from 60 schools in England.

This project (ImpaCT2 project), considered as one of the most comprehensive investigations into the impact of ICT on educational achievement so far conducted in the United Kingdom (UK), analysed the relationship between the pupils' performance in National Tests and General Certificate of Secondary Education (GCSEs) and their reported use of ICT at three age levels (11, 14, 16), in English, Maths and Science (and in additional subjects at the age 16). The study found evidence of a statistically significant positive association between ICT and higher achievement, most notably in national tests for English at Key Stage 2 (age 11), in National Tests for science at Key Stage 3 (age 14), and in GCSE exams for science and design and technology at Key Stage 4 (age 16). On the basis of these findings one can say that high ICT use in English (i.e. mother tongue) at ages 7-11 (Key Stage 2) and in science at ages 11 to 14 (Key Stage 3) can help to raise performance by the equivalent of 0.16 and 0.21 respectively of a National Curriculum performance level. Similarly, high ICT use in science and in

design and technology at ages 14-16 (Key Stage 4) can contribute to an increase of performance by 0.56 and 0.41 of a GCSE grade respectively. In other words, ICT use between ages 7 and 16 can result in significant relative gains in English, science and design and technology. A second UK project that investigates how the sustained and embedded use of ICT in learning spaces can improve learner outcomes is the Test Bed project, conducted from 2002 to 2006. The evaluation of the project confirms that technology deployment and use may lead to an improvement in test performance relative to 'benchmark' comparators.

Employment opportunities associated with ICT

Several studies have indicated that the use of new technologies in the classroom is essential for providing opportunities for students to learn to operate in an information age. It is evident as Yelland (2001) argued that traditional educational environments do not seem to be suitable for preparing learners to function or be productive in the work place of today's society.

Grimus (2000) pointed out that "by teaching ICT skills in primary schools, the pupils are prepared to face future developments based on proper understanding" (P. 362). This was the idea behind the introduction of ICT into the Basic schools in Ghana in the year 2007. Similarly, Bransford, Brown and Cocking (2000) reported that "what is now known about learning provides important guidelines for uses of technology that can help students and teachers develop the competencies needed for the twenty-first century"(P. 206).

ICT can play various roles in learning and teaching processes. According to Bransford et al. (2000), several studies have reviewed the literature on ICT and learning and have concluded that it has great potential to enhance student achievement and teacher learning.

Computers and Urban-Rural Divide

Marshall and Bannon (1986) in a literature noted that rural students have less microcomputer access than their urban counterparts. This was argued as a natural consequence of the more limited resources available in rural districts compared to urban districts. In general, teachers, students, parents and others have been found to have positive attitudes toward computers as found by Ahl (1976); Healy and Schilmoeller (1985) and this findings were confirmed and Loyd and Gressard (1984) all were cited in Marshall & Bannon; 1986). Parents' attitudes toward their children using computers in school have been found to be positively related to income, negatively related to education level of parents and unrelated to children's access to computers in the home (Healy & Schilmoeller, 1985; cited in Marshall & Bannon, 1986; Baker ,1985 cited in Marshall & Bannon, 1986).

Marshall and Bannon (1986) found from their study that attitudes toward computers were not related to gender, age or job level relationships among cooperative extension workers, but that these attitudes were related to perceptions of myth ability. I have the opposite view about this finding in that in Ghana here there is a general opinion that those of say thirty-eight years and above popularly called “born before computer” who are not in a job which demands the use of computers on the job would not like to come near it all and this has cut across

gender in general. Among college students, Griswold (1982) reported that age was the best predictor of attitudes toward computers, followed by major. The evidence indicates that teachers are generally positive toward computers, but this seems to be a function of the distance of computers from their classrooms (Lumsden & Norris, 1984).

The attitude of teachers toward computers seems to be fairly constant, while their knowledge has been increasing (Stevens, 1982). The research reported has represented numerous populations, some urban or suburban and other small town or rural. Positive attitudes have been reported for the various populations. With differing instrumentation from study to study there has been no basis for comparison between the urban and rural communities. The common mythology seems to be that students in urban schools are advantaged in comparison to rural students in computer resources, affecting computer access, attitudes, and knowledge (Bannon & Marshall, 1986). A study by Bannon and Marshall (1986) indicates that the majority of educators and students have access to microcomputers at home and about one-fourth of the students have daily access in the classroom. Interestingly, the rural students had greater access than the urban students.

In a study to find the digital divide in Canadian schools with a focus on the factors affecting student access to and use of information technology by Looker and Thiessen (2003) noted that rural households were somewhat less likely than urban ones to have a computer. The study noted that 12% of those in cities compared to 6% of those in villages or small towns had two or more

computers in their home. Related to this, the same data set shows that those in the smaller rural villages reported fewer days per month, on average; spent on computers at home (44% of those in villages, compared to 57% in urban centres said they used a computer almost every day). However, rural youth in villages report somewhat more time per month spent on computers at school. They also report slightly more computer use in libraries. This pattern suggests that rural schools and communities have been able to provide computer access to youth who may not have direct access in their own homes. According to the General Social Survey–Cycle (GSS) more rural (60%) than urban youth (45%) first learned to use a computer because of school or study needs. Urban youth were more likely to say they first learned out of personal interest.

Summary of Related Literature

The studies on planned behaviour theory which is the theoretical basis for this study; deals with the antecedents of attitudes, subjective norms and perceived behavioural control (Ajzen & Fishbein, 1980). Bem (1970) indicated that our emotions, behaviour have social influences upon us. Attitude represents a summary evaluation of psychological object and is described internally and externally being good-bad, likeable-dislikeable, harmful-beneficial or pleasant-unpleasant (Ajzen & Fishbein, 2000; Chaiken & Eagly, 1993).

In several studies, it was found that students have positive or pleasant attitude towards the study of ICT (Siragusa & Dixon, 2008; Rashid & Raiz, 2003). The review also showed that ICT has positive impact on students' learning (Balanskat, Blamire & Kefala, 2006).

Having access to computers and softwares at times become difficult and other ICT materials in schools (BECTA, 2009; Sicilia, 2005; Empirica, 2006; Korte & Husing, 2007). Insufficient numbers of computer peripherals and internet access become a draw back to pupils in learning ICT in schools. (Condie, Collins, Munro & Muir, 2005).

Male students in general have positive attitude to the study of ICT or find computers more useful as compared to their female counterparts (Kaino, 2005; Bross, 2005; Meyer & Koehler, 1990). However, in Botswana, Kaino and Salani (2004) found that students did not consider the use of calculators to be useful in learning.

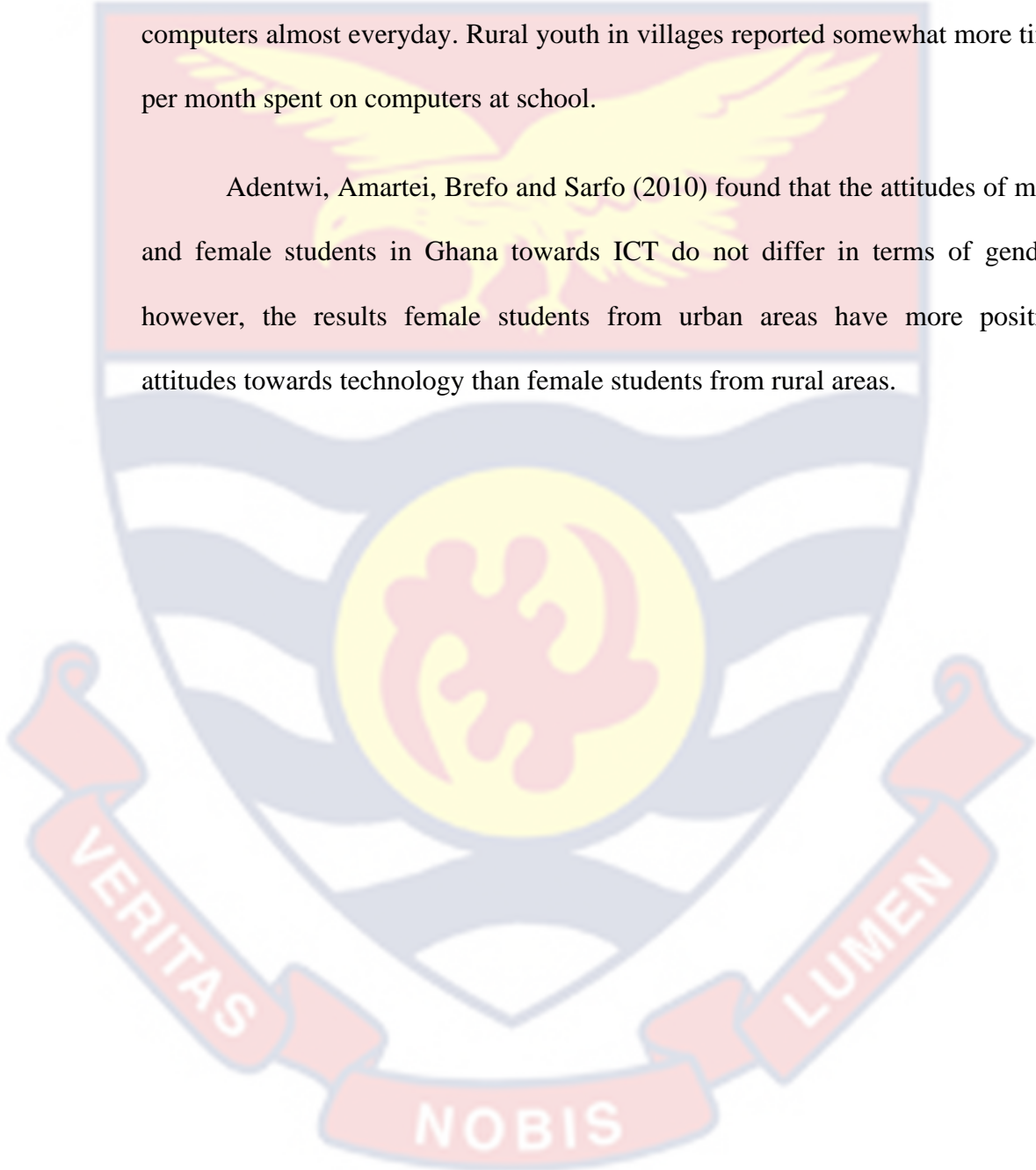
The studies done by Yelland (2000), Grimus (2000), Brandsford, Brown and Cocking (2000), have established that the use of new technologies including computers have the ability for providing job opportunities for students when they have finished school.

Marshall and Bannon (1986) noted that students in rural areas have less access to microcomputers as compared to the students in urban settings. Also, attitude to computers were not related to gender, age or job level relationships. Teachers, students and parents in general were reported to have positive attitude to the use of computers (Ahl, 1976; Loyd & Gressard, 1984).

Hearly and Schilmoeller (1985) cited in Marshall and Bannon (1986) noted in their study that parents' attitude toward their children using computers in schools have been found to be positively related to income, negatively related to educational level of parents and unrelated to children's access to computers in the

home. In a study done by Looker and Thiessen (2003) among Canadian schools found that students in smaller rural villages use few days in a month on the average using computers at home as compared to 57% in urban areas who uses computers almost everyday. Rural youth in villages reported somewhat more time per month spent on computers at school.

Adentwi, Amartei, Brefo and Sarfo (2010) found that the attitudes of male and female students in Ghana towards ICT do not differ in terms of gender; however, the results female students from urban areas have more positive attitudes towards technology than female students from rural areas.



CHAPTER THREE

METHODOLOGY

Introduction

This chapter deals with the method, techniques and procedures that were used to carry out the research. These include the research design, the population, the sample size, sampling procedure, instrumentation, data collection procedures as well as the methods of data analysis.

Research Design

The researcher adopted a cross-sectional survey design to help find a solution to the problem that was investigated. According to Gay (1992), all research studies involve data collection. Since all studies are designed to either test hypotheses or answer research questions, they all require data with which to do so. Descriptive research gives the opportunity to use both quantitative and qualitative data in order to find data and characteristics about the population or phenomenon that is being studied. Using descriptive research has both its advantages and disadvantages. The data collection for descriptive research presents a number of advantages as it can provide a very multifaceted approach.

The descriptive design has some strengths due to the fact that surveys are relatively inexpensive; especially if the researcher self-administered the instrument and this can help to reduce cost. Also, surveys are useful in describing the characteristics of a large population which no other method of observation can

generally provide this capability. Instruments for a study can be administered from remote locations using mail, email or telephone. Consequently, very large samples are feasible, using this particular design making the results statistically significant even when analyzing multiple variables.

Some weaknesses of descriptive design are worth noting. Confidentiality is a big disadvantage of descriptive research. Subjects that researchers are questioning may not always be truthful and instead, will give answers that they feel that the researcher wants to hear. In interviews, participants may also refuse to answer any questions that they feel are too personal or difficult. Descriptive research also carries with it an observer's paradox. If a participant knows that someone is observing them, they may change the way they act. Subjectivity and error also play a disadvantageous role in descriptive research. Questions presented by a researcher are predetermined and prescriptive, while studies can contain errors. A researcher may choose what information to use and ignore data that does not conform to their hypothesis.

Despite some of the weaknesses noted above, the researcher is of the view that it is the best design that can be used in finding the necessary answers to the problem. The demand of the problem, collection of data from predetermined sample size and the variables involved in the problem can be well addressed using this design. Also, the researcher studied the phenomena as they existed by collecting data to answer the research question and test the formulated hypotheses.

Population

The targeted population for the study were all public and private Junior High Schools (JHS) in Cape Coast Metropolis. These schools are scattered in the rural and urban areas of the Cape Coast Metropolis in the Central Region of Ghana. The accessible population consisted of pupils in some selected public and private JHS in rural-urban areas in the Efutu, Aboom and Pedu-Abura Circuits. There are eighty (80) public and private JHS with an enrolment figure of two thousand nine hundred and fifty-four (2,954) JHS 2 pupils. The accessible population for the study consisted of pupils in seven (7) selected schools (Christ Church Anglican JHS, St. Nicholas Anglican JHS, Ayifua St. Mary Anglican JHS, Sir Holdbrook-Smith International JHS, Golden Treasures International JHS, St. Cyprians Anglican JHS & Tuwohofo Holy International JHS) in the Cape Coast Metropolis.

This population was chosen for the study because it was a mixed school population and easy to access in terms of proximity and transportation to make the collection of data easy to the researcher. Also, the necessary character traits of behaviour and attitude and all the components of a complete community could easily be found in these schools setting.

Sample and Sampling Procedure

Purposive sampling was used to select Christ Church Anglican JHS, Ayifua St. Mary Anglican JHS, Sir Holdbrook-Smith International JHS, Golden Treasures International JHS, St. Cyprian Anglican JHS and Tuwohofo Holy International JHS. Purposive sampling method was used to select the above

named schools because it was believed they have access to computer usage and also of the fact that their geographical locations were representative enough of the pupils.

Quota sampling technique was used to get the sample size for the study since gender was one of the focuses in getting respondents for the needed data for the study. Quota sampling technique was used to obtain representatives of the variables (gender) involved so that equal number of the sample size that was needed was realised. The sample size for the study was two hundred and three (203) pupils; thirty pupils from each chosen school. This sample was obtained using the JHS form two classes' registers as the sampling frame.

The researcher assigned a quota of thirty pupils which comprised fifteen boys and fifteen girls for individual cases. This, in the view of the researcher, would provide a fair representation as well as level ground and support the fact that the responses would be evenly distributed along gender line.

According to Frankael and Wallen (2000), a sample size of a minimum of one hundred (100) was recommended for descriptive studies for a meaningful generalization. Hence, a sample size of two hundred and three (203) would be good enough for a meaningful generalization.

Instruments

The instruments used to collect the data were questionnaire and an observation guide. "Teachers' Attitudes Toward Computers" (TAC) originally developed by Woodrow (1992) Version 6 was adapted and renamed as "Pupils' Attitude Toward Computers" (PAC) for this study. The researcher was of the

view that the adapted instrument (PAC) could be used to collect the needed data for the study. The renaming of the instrument was to reflect the respondents (pupils) who this study is directed at. Few of the items were removed from the original questionnaire and four other items (biographical data) were infused into it so as to suit the respondents and the context of the study.

Analysis of educator data sets collected by TAC from 1995–1997, 1998–1999, 1999–2000, 2003, 2006, and 2008 before its adaption, have reconfirmed that the Teachers' Attitudes Toward Computers Questionnaire (TAC) has retained superior psychometric properties as it evolved from its original 284 items to the 51 items. Confirmatory factor analysis verified acceptable goodness-of-fit indices in the form of Root Mean Square Error of Approximation (RMSEA) = .048 (desirable is < .06), Standardized Root Mean-square Residual (SRMR) = .0452 (desirable is <= .08), and Comparative Fit Index (CFI) = .984 (desirable is >= .95). Internal consistency reliability estimates for 2006 K–12 teacher data in the USA ranged from .89 to .95 among subscales representing the nine TAC constructs.

Reliability estimates for 2008 when it was used on pre-service teacher data ranged from .87 to .95. The 51-items version of the TAC (v. 6.1) produced acceptable goodness of- fit indices for its nine subscale constructs, based on analysis of 1,179 teacher responses from 2003. High internal consistency reliabilities were also verified for additional sets of 2006 teacher data and 2008 pre-service teacher preparation data. This led the authors Morales (2006), Liao (2003) and Moonen (2001) to conclude that the TAC is a well-validated, reliable

instrument for teachers' self-appraisal of their attitudes toward computers, worthy of continued use in multiple language and cultural environments as it was established by Christensen and Knezek (2001). The researcher was of the opinion that establishing the reliability of PAC was not necessary again in the view that the biographical items included would not alter anything in the instrument since this was done by Christensen and Knezek (2001), Morales (2006), Liao (2003) and Moonen (2001).

The questionnaire (PAC) was made up of three sections (Section A – C) with a total of thirty-five items. Section A was the biographical data composed of four closed ended items while the rest of the Sections had thirty-one items. Section B was a four-point Likert Scale except items 18 to 22 which were a seven point Scale (1-7) and Section C was also a four-point Likert Scale. The scoring of the Likert Scale was done using the scoring option as “Strongly Agree” = 1, “Agree” = 2, “Disagree” = 3 and “Strongly Disagree” = 4. While the seven point scale was scored in ascending order from “1” up to “7” and “1” being the lowest scored value and “7” being the highest scored value in the continuum.

The researcher was convinced that these instruments were the best tools to be used to collect the necessary data for the study, having looked at all the variables in the topic for the study because the adapted TAC was used extensively to collect data on Teachers' attitude towards computer. The inclusion of the Likert scale was meant to collect attitudinal data which made the questionnaire the relevant tool to be used in this case. Attitude can easily be identified through

observation; hence, observation guide was used as one of the tools to help in the triangulation of the data collected by the questionnaire (PAC).

The observation guide instrument (refer to Appendix B) was designed by the researcher and it was reviewed by the researcher's supervisor. The Observation Guide was a structured type made up of nine (9) open-ended items which were filled on the item sheet by the observer (researcher) during classes on non participating bases. The observation guide was used during ICT lessons in the selected schools to collect the necessary data for the triangulation.

The Observation guide was used to triangulate the data collected with the questionnaire to confirm the consistency and reliability of the data collected so that the information collected from the respondents can be heavily relied on, to draw the appropriate conclusion(s).

Internal Validity and Reliability of the Instruments

Content-related evidence and face validity was used to ensure validity of the instruments (PAC & Observation Guide). According to Fraenkel and Wallen (2000), content-related evidence helps to determine if the content of the instrument contains an appropriate or adequate sample of the domain it is supposed to represent or reflect and these were done by earlier researchers (Morales, 2006; Liao; 2003 & Moonen, 2001).

The TAC version 6 has typically produced reliability estimates in the range of .84 to .97. For example, in a study done by Liao (2003) and DeVellis (2003) involving 786 pre-service educators in 2003, it was found that subscale reliabilities ranged from .84 to .94. In another study involving 306 in-service

educators in 2001, by Christensen and Knezek (2001) it was found that subscale reliabilities ranged from .86 to .97. Christensen and Knezek (2008) gathered data from 273 pre-service educators in Texas and Maine yielded subscale reliability estimates ranging from .87 to .95.

Educators from other nations have also used the TAC in translated forms (example, Moonen, 2001; Liao, 2003; Morales, 2006) and these investigations often verified significant differences among groups being studied indicating acceptable reliabilities among the translated forms. For the study in Mexico, Morales (2006) calculated TAC subscale reliability estimates ranging from .74 to .98. All these studies have indicated that reliability has been established hence the researcher would dwell on this reliability for this particular study.

The contents of the Observation Guide were also discussed with the supervisor and the necessary review and adjustments were made before it was finally sent to the field to collect data. This was done to ensure the validity of the various items in the instruments for data collection for the study.

Pilot-Testing of Instruments

TAC operationally called PAC was extensively used in so many countries across the world and also in different languages. The reliability estimate ranging from .74 to .98 was good and reliable enough for this study. The work done on PAC by several authors (Christensen & Knezek, 2008; 2001; Morales, 2006; Liao, 2003; DeVellis, 2003; Liao, 2003; Moonen, 2001 & Woodrow, 1992) had enough statistical ground for the use of the PAC without any further pilot-testing

and can be used undoubtedly by any researcher to collect data on attitude of pupils towards computer for that matter ICT.

The Observation Guide was reframed with the help of the supervisor of this study. Hence, the researcher was very optimistic that it can collect the desired data for the triangulation.

Data Collection Procedure

The researcher collected an introductory letter from the Department of Master of Education, Information and Technology at the Centre of Continuing Education of the University of Cape Coast to the Junior High Schools' (JHS) head teachers/headmistresses concerned. This was to seek their permission before collecting the necessary data from the selected pupils in their area of jurisdiction.

Seven days were used for the data collection in the respective seven schools. The researcher negotiated with the respective subject teachers (ICT) involved so that the observation was done during lessons on non-participatory approach bases. The observation was done during the 'double periods' lessons only and this was to allow for a relatively long period to see what goes on in the class while teaching goes on. The various ICT teachers were also observed to see how they went about their teaching and the kind of learning environment created in the classroom.

The subject teacher was asked to assist the researcher in the questionnaire administration to the pupils which was responded to just after the class and the questionnaires were taken back. Explanations were first given to the subject teachers and then to the pupils for clarity on the questionnaire (PAC) so that the

right things were done while responding to the items on the questionnaire. The instruments were collected in such a short time interval with the reason of achieving hundred percent rate of collection.

Data Analysis

The Predictive Analytics Software (PASW) version 18 for Windows was used to aid in the data analysis. Frequencies and percentages were used to analyse the biographic data and research question one. The percentages were applied for the measuring scale, Strongly Agree (SA), Agree (A) have been put together as Agree (A) and same was done for Strongly Disagree (SD) and Disagree (D) as Disagree (D). These were done for easy analysis of the data collected from the respondents. The data collected about the feelings of pupils were re-coded that is data collected for scale 1-3 have been put together under the heading '1-3' and the same treatment was done to scales 4-7 under the heading '4-7' and their percentages were sum up accordingly for easy analysis and representation in tables. The high values from the scores were then used to do the necessary analysis taking into consideration the low percentages.

The means of the attitudinal items were computed after which Independent-sample t test was used to compare the means of the two different samples. The samples share some variable of interest in common, but there was no overlap between memberships of the two groups. Independent t-test was therefore used as the statistical tool to test hypotheses one, two and three. The independent t-test was run thus, comparing the means of two independent samples which were rural-urban, public-private and male-female's attitude towards the

study of ICT. All the hypotheses (one – three) were tested at 0.05 level of significance.

Qualitative data analysis was used to analyse the observation guide using the most occurred observed behaviour from the three observations that were carried out by the researcher as a complement to whatever data was collected by the questionnaire. The observed behaviours were used to support the data collected with PAC during the analysis of the researcher questions.



CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter discusses the result of the study beginning from the biographical data from the respondents, through to the last hypothesis. The biographical data presents the overview of the background of the respondents from whom the data for the study was collected so as to give a better picture of this report to readers.

As mentioned in chapter one, the main focus of this study was to find out the general attitude of Junior High School pupils towards the study of Information and Communication Technology (ICT) in Cape Coast Metropolis in some selected JHS in rural-urban and public-private schools. The study focused on one research question and three hypotheses.

Analysis of biographical data of Respondents

Table 1: Type of School

Name of school	Category of school		Total
	Public	Private	
Christ Church Anglican JHS	30	-	30
St. Nicholas Anglican JHS	30	-	30
Ayifua St. Mary Anglican JHS	30	-	30
Tuwohofo Holy Int. JHS	-	30	30
Sir Holdbrook-Smith Int. JHS	-	26	26
Golden Treasures Int. JHS	-	28	28
St. Cyprian Anglican JHS	29	-	29
Total	119	84	203

A cursory look at Table 1 shows that 119(58.6%) pupils who have responded to the questionnaire were from the Public schools and 84 (41.4%) were from the Private schools.

Table 2: Location of School

Category	No.	%
Rural	59	29.1
Urban	144	70.9
Total	203	100

In Table 2, the few pupils 59 (29.1%) who answered the questionnaire were from the Rural areas and the majority 144 (70.9%) were from the Urban areas.

Table 3: Sex of Respondents

Sex	No.	%
Male	103	50.7
Female	100	49.3
Total	203	100

There was a total of 203 pupils who responded to the questionnaire as it can be observed in Table 3. The males were just above half (50.7%) of the total sampled pupils while the female pupils were just below half (49.3%) of the total number of respondents.

Table 4: Age bracket of Pupils

Age (years)	No.	%
12-13	47	23.2
14-15	111	54.7
16-18	45	22.2
Total	203	100

Table 4 indicated that majority 111 (54.7%) of the respondents belong to the 14-15 years age bracket while 47 (23.2%) were in the 12-13years group bracket which was almost equal to that of the 16-18 year age bracket having 45 (22.2%) of pupils.

Table 5: The uses of Computers

Statement	Agree (%)	Disagree (%)
The use of E-mail helps to learn more.	191(94.0)	12(6)
The use of E-mail increases motivation for class.	162(79.8)	41(20.2)
The use of E-mail helps provide a better learning experience.	183(90.1)	20(9.9)
It is fun to figure out how computers work.	156(76.8)	47(23.2)
Students should understand the role computers play in society.	183(90.1)	20(9.9)
Computers could increase productivity.	155(76.4)	40(23.6)
Computers have the potential to control our lives.	88(43.3)	115(56.7)
Working with computers makes me feel isolated from other people.	77(37.9)	126(62.1)
Computers could stimulate creativity in students	147(72.4)	56(27.6)
Having computer skills helps one get better jobs.	183(90.1)	20(9.9)
Computers are used daily in most places.	183(90.1)	20(9.9)
I can't think of any way that I will use computers in my career	43(21.2)	160(78.8)
I see the computer as something I will not use in my daily life.	41(20.3)	162(79.3)

A cursory look at Table 5 shows that respondents agree with items “The use of E-mail helps to learn more”, “The use of E-mail increases motivation for class”, “The use of E-mail helps provide a better learning experience”, “It is fun to figure out how computers work”, “Students should understand the role

computers play in society” and “Computers could increase productivity” in Table 5. Also the statements “Computers could stimulate creativity in students”, “Having computer skills helps one get better jobs”, “Computers are used daily in most places” are positive statements with percentage scores ranging from 72.4% to 90.1% but disagree with these statements “Computers have the potential to control our lives” and “Working with computers makes me feel isolated from other people”. Also, the statements “I can’t think of any way that I will use computers in my career” and “I see the computer as something I will not use in my daily life” were negative statements with percentage scores ranging from 56.7% to 79.3%.

From the analysis made based on Table 5, it was clear that pupils were aware of computer usage and its ability to create future job opportunities. It can, therefore, be concluded that the respondents have a strong belief that they are aware of the potentials of computer to create future job opportunities and the uses in future. So this can influence their attitude towards the study of ICT while in school.

This finding agrees with the earlier studies done by Yelland (2000), Grimus (2000), Bransford, Brown and Cocking (2000) which have attested to the fact that technology can help create job and training for future leaders and awareness of this fact was established by this study among JHS pupils in the Cape Coast Metropolis.

Research question 1:**What is the attitude of pupils towards the study of ICT at the JHS?**

The responses from the data collected is shown in Tables 6 and 7

Table 6: Attitude of Pupils towards the Study of ICT at JHS

Statement	Category	
	Agree (%)	Disagree (%)
I want to learn a lot about computers	195(96.1)	8(3.9)
The challenges of learning about computers are exciting	156(76.8)	47(23.2)
I like learning on a computer	180(88.7)	23(11.3)
I can learn many things when I use a computer	183(90.1)	20(9.9)
I get bored when I think of trying to use a computer	53(26.1)	150(73.9)
Working with computers makes me feel tense and uncomfortable	39(19.2)	164(80.8)
Working with a computer makes me nervous	49(24.1)	154(75.9)
Computers intimidates me	50(24.6)	153(75.4)
Using a computer is very frustrating	68(35.5)	135(64.5)
If I had a computer at my disposal, I would try to get rid of it	88(42.4)	115(57.6)
Studying about computers is a waste of time	21(10.3)	182(89.7)
Computers are changing the world too rapidly	140(69.0)	63(31.0)
I am afraid that if I begin to use computers, I will become dependent upon them	71(35.0)	132(65.0)

A cursory look at Table 6 shows that more than 76% of the respondents agree with the positive statements “I want to learn a lot about computers”, “The challenges of learning about computers are exciting”, “I like learning on a computer” and “I can learn many things when I use a computer”. More than 57% of the respondents have disagree with to all the negative statements “I get bored when I think of trying to use a computer” , ”Working with computers makes me feel tense and uncomfortable”, “Working with a computer makes me nervous”, “Computers intimidates me”, “Using a computer is very frustrating”, “If I had a computer at my disposal, I would try to get rid of it”, “Studying about computers is a waste of time”, “I am afraid that if I begin to use computers I will become dependent upon them” except the statement “Computers are changing the world too rapidly” in Table 6; had 31% of the respondents who agree with this negative statement.

The result from Table 6 has indicated that generally most of the pupils in JHS in the Cape Coast Metropolis have agreed with the positive statements which are favourable. However, the negative statements were disagreed with indicating that the pupils have positive attitude towards the study of ICT.

The result indicated that majority of the respondents have the view that learning about computers and uses are very important. This showed that pupils have a more positive attitude towards the study of ICT as supported by the data available in Table 6.

Table 7: Respondents' feeling about Computers

Statement	1-3(%)	4-7(%)	Statement
Computers are:			
Unpleasant	24(11.8)	179(88.2)	Pleasant
Suffocating	48(23.6)	155(76.4)	Fresh
Dull	15(7.4)	188(92.6)	Exciting
Unlikeable	18(8.9)	185(91.1)	Likeable
Uncomfortable	18(8.9)	185(91.1)	Comfortable

From Table 7, the positive feeling of respondents about computers have percentage scores ranging from 76.4% to a maximum of 92.6% on the statements “Pleasant”, “Fresh”, “Exciting”, “Likeable” and “Comfortable” while the negative statements “Unpleasant”, “Suffocating”, “Dull”, “Unlikeable” and “Uncomfortable” about the feeling of respondents about computers have percentage scores ranging from 7.4% to 23.6%. It is clear that the respondents have positive feelings about computers for all the five adjectival statements in Table 7.

Putting all the deductions made from Tables 6 and 7, it can be concluded that pupils in JHS have positive attitude towards the study of ICT. Pupils in JHS did not have only a positive attitude but a strong one based on the information available in Tables 6 and 7 which were collected from the field (schools) of the participating pupils. The finding from this study agreed with the studies done by

Ahl (1976), Rashid and Raiz (2003) and Siragusa and Dixon (2008); that pupils have positive attitude towards the study of ICT.

Hypothesis 1:

H₀: There is no significant difference between the attitudes of rural and urban pupils towards the study of ICT.

H₁: There is a significant difference between the attitudes of rural and urban pupils towards the study of ICT.

Table 8: Summary Statistics and independent sample t-test on Pupils'

Attitude towards ICT between Rural and Urban Schools

Status	N	Mean	SD	t	df	Sig (2-tailed)
Rural	59	3.0593	.44359	-7.751	86.958	.000
Urban	144	3.5575	.33844			

Table 8 shows the result of pupils' attitude from rural and urban schools towards the study of ICT in JHS. From Table 8, it can be observed that there was statistically significant difference in the means of pupils in score of pupils in rural area of Cape Coast Metropolis (M = 3.0593, SD = .44359) and pupils in urban area (M=3.5575, SD = .33844); $t(86.958) = -7.751$, $p = .000$. The magnitude of difference in the means was large; eta squared (η^2) = .230. At the level of significance, $\alpha = 0.05$; Sig. (2-tailed) = .000 and $p = .000$; the researcher rejected the null hypothesis (H₀) in favour of the alternative hypothesis due to fact that the p-value was less than 0.05. The result is statistically significant. It can therefore,

be concluded that there is a significant difference between the attitudes of rural and urban pupils towards the study of ICT in the Cape Coast Metropolis.

Hypothesis 2:

H₀: There is no significant difference in attitude between male and female pupils in studying ICT in JHS.

H₁: There is a significant different in attitude between male and female pupils in studying ICT in JHS.

Table 9: Summary of Statistics and independent sample t-test on Attitude of Male and Female Pupils towards ICT

Sex	N	Mean	SD	t	df	Sig (2-tailed)
Male	103	3.4671	.41461	1.820	201	.070
Female	100	3.3567	.44976			

Table 9 shows the summary of statistics and independent sample t-test on attitude of male and female pupils towards the study of ICT. From Table 9, it can be observed that sig. (2-tailed) = .07 and $p = .07$ was greater than $\alpha = 0.05$. The mean difference was not statistically significant of male pupils score ($M = 3.4671$, $SD = .41461$) and female pupils ($M = 3.3567$, $SD = .44976$); $t(201) = 1.820$, $p = .070$. At the level of significance, $\alpha = 0.05$; Sig. (2-tailed) = .070 and $p = .070$; the researcher therefore failed to reject the null hypothesis due to fact that the p-value was more than 0.05. The result is not statistically significant. It can therefore, be concluded that there is no significant difference between the males and females' attitude towards the study of ICT in the Cape Coast Metropolis.

The result from this study did not support the fact that during the observation of pupils after the administration of the questionnaire, the male pupils were generally much enthused about the study of ICT in school. This therefore suggested that though female pupils have positive attitude towards the study of ICT, but did not openly show this. The result confirmed the finding by Adentwi, Amartei, Brefo and Sarfo (2010), which indicated that female and male students' attitude towards the study of ICT do not differ in terms of gender.

Hypothesis 3:

H₀: There is no significant difference in the attitude of pupils between public and private schools pupils towards the study of ICT in JHS.

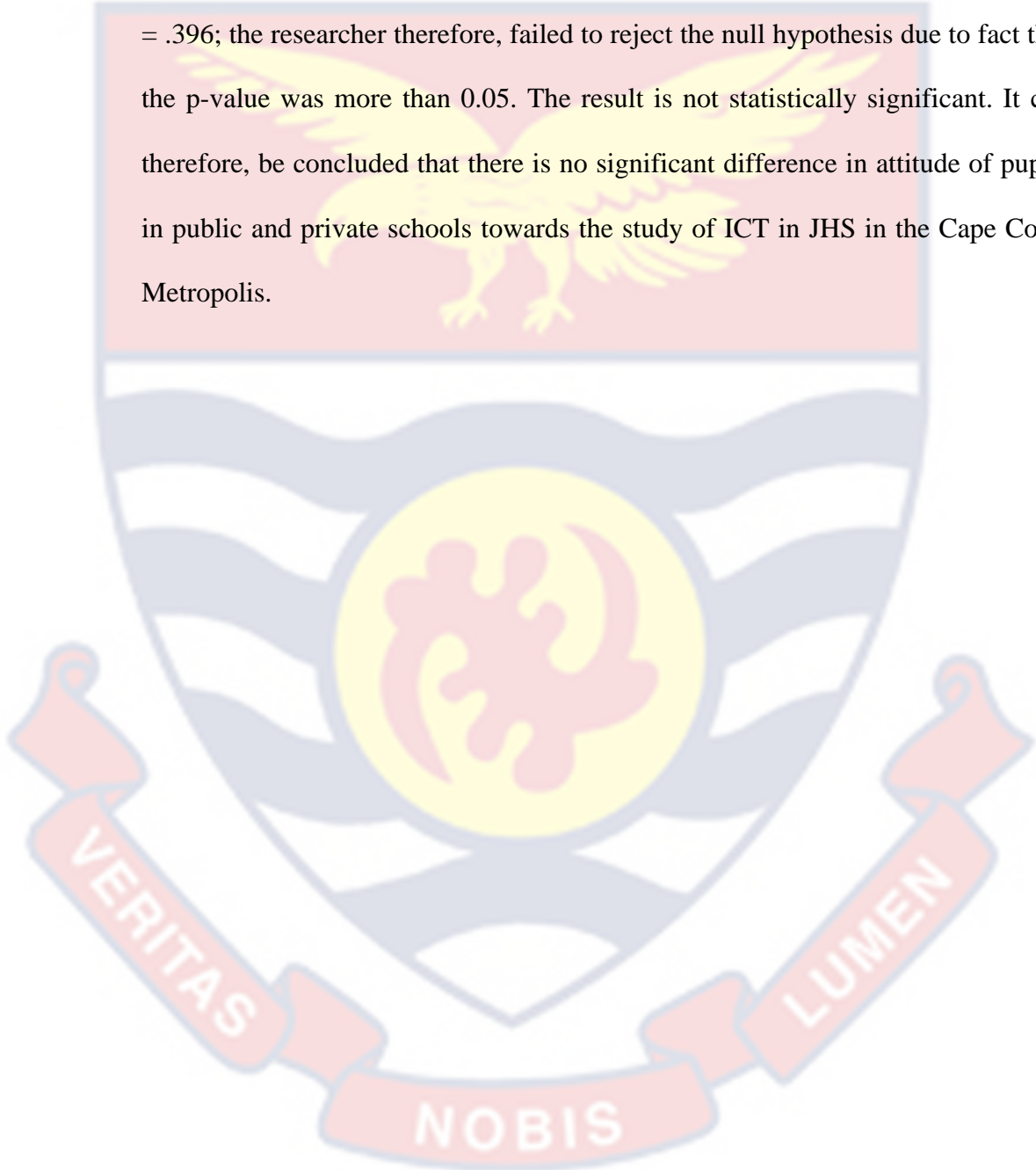
H₁: There is a significant difference in the attitude of pupils between public and private schools pupils towards the study of ICT in JHS.

Table 10: Summary of Statistics and independent sample t-test of Public and Private Schools Pupils' Attitude towards ICT

Type of School	N	Mean	SD	t	df	Sig (2-tailed)
Public	119	3.3917	.47095	-.850	197.594	.396
Private	84	3.4425	.37832			

At the level of significance, $\alpha = 0.05$; Table 10 shows the summary of statistics and independent sample t-test of public and private schools pupils' attitude towards ICT in JHS. From Table 10, it can be observed that sig. (2-tailed) = .396 and $p = .396$ was greater than $\alpha = 0.05$. The mean difference was not

statistically significant of pupils in public schools of the score ($M = 3.3917$, $SD = .47095$) and pupils in private of the score ($M=3.4425$, $SD = .37832$); $t(197.594) = -.850$, $p = .396$. At the level of significance, $\alpha = 0.05$; Sig. (2-tailed) = .396 and $p = .396$; the researcher therefore, failed to reject the null hypothesis due to fact that the p-value was more than 0.05. The result is not statistically significant. It can therefore, be concluded that there is no significant difference in attitude of pupils in public and private schools towards the study of ICT in JHS in the Cape Coast Metropolis.



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter summarises the findings of this study, conclusions based on the study and makes recommendations for further research.

Overview of the Study

The purpose of this study was to ascertain the attitude of JHS pupils in general as well as the gender element of pupils towards the study of ICT in the Cape Coast Metropolis. Descriptive research design was employed in this study where questionnaire was the main tool to collect data for the study and observation guide was also used as a supplementary tool to triangulate the data collected from the respondents.

A sample size of two hundred and three (203) responded to the questionnaire out of a population size of two thousand, nine hundred and fifty-four (2,954) from seven public and private JHS which were located in the urban and rural areas in the Cape Coast Metropolis. The respondents were purposively drawn from private and public schools located in the Efutu, Pedu-Abura and Aboom circuits in the Cape Coast Metropolis. A total of seven (7) schools (Christ Church Anglican JHS, St. Nicholas Anglican JHS, Ayifua St. Mary Anglican JHS, Sir Holdbrook-Smith International JHS, Golden Treasures International JHS, St. Cyprians Anglican JHS & Tuwohofo Holy International JHS). The

schools included three (3) private and four (4) public schools which were from either urban or rural areas in the Metropolis.

The study was situated in the Theory of Planned Behaviour as designed by Ajzen and Fishbein (1980) which tried to find out how human beings behave in a peculiar way from various backgrounds. And this theory was adapted because it was found to be the most appropriate for this study.

One research question and three hypotheses were used to guide the study. Predictive Analytic Software (PASW) version 18 for Windows was used to aid in data analysis. Frequencies and percentages were used as a statistical tool to analyse research question one while the three hypotheses were analysed using Independent sample t test as a statistical tool.

Key Findings

The Study focused on comparing rural-urban and public-private Junior High Schools pupils' attitude towards the study of Information and Communications Technology. Based on the research question and the formulated hypotheses for the study, the key findings that emerged were:

1. Pupils have strong positive attitude towards the study of Information and Communication Technology (ICT) in the Cape Coast Metropolis.
2. There is a significant difference in attitude between pupils in rural and urban schools towards the study of ICT in the Cape Coast Metropolis.
3. There is no significant difference in attitude between the male and female pupils towards the study of ICT in the Cape Coast Metropolis.

4. There is no significant difference in the attitude of pupils in public and private schools towards the study of ICT in JHS in the Cape Coast Metropolis.

Conclusions

The finding of the study revealed that pupils in the seven schools; Christ Church Anglican JHS, St. Nicholas Anglican JHS, Ayifua St. Mary Anglican JHS, Sir Holdbrook-Smith International JHS, Golden Treasures International JHS, St. Cyprians Anglican JHS and Tuwohofo Holy International JHS have much positive attitude towards the study of ICT. This finding revealed the current attitude of pupils in relation to the study of ICT. The result of the study also indicated that there is significant difference in attitude of pupils in the rural and urban areas in studying ICT.

Another finding from this study was that there is no significant difference in attitude of male and female toward the study of ICT in Junior High Schools in the Cape Coast Metropolis. Also, there was no significant difference in terms of attitude in either public or private schools. This means that gender factor has no effect in attitude when we are considering the learning of ICT as well as the type of school (public or private) in the Cape Coast Metropolis.

The general feeling about the result and findings were that it clarified the hazy view that somebody may have about the topic and the problem would be better understood by those who might read this report. The new thing it brought to fore was that pupils in the rural and urban areas of the Metropolis have

significant difference in attitude towards the study of ICT and this difference was large.

Recommendations

Recommendations for Policy and Practice

The following recommendations for policy and practice have been made based on the findings from this study.

1. To sustain and improve the positive attitude of pupils towards the study of ICT in the JHS, computer laboratories should be built for practical work to blend the theoretical work in the classroom.
2. The Metropolitan Assembly should liaise with relevant agencies to acquire computers and electricity for schools in the rural areas of the Cape Coast Metropolis to enhance teaching and learning of ICT.
3. Guidance and Counselling coordinators should collaborate with the ICT teachers, to educate pupils about the relevance of studying the subject in school. Local Enterprises and Skills Development Programme (LESDEP) and Non Governmental Organizations (NGOs) can be brought on board as facilitators to help pupils develop career opportunities from the subject so that they can set up computer related jobs even after JHS in the Metropolis.

Suggestion for Further Research

This study limits its scope to the comparative study of rural-urban and public-private Junior High School pupils' attitude towards the study of ICT in selected circuits (Efutu, Pedu-Abura & Aboom) in the Cape Coast Metropolis.

The researcher therefore suggests that a study is conducted in other Districts, Municipalities and Metropolis in the region (Central Region) to see the general picture for the necessary action to be taken.

Also, similar study should be done to compare the attitude of teachers versus pupils in rural-urban and public-private schools to find the situation on the ground for the necessary steps to be taken.



REFERENCES

- Abelson, R. P., Kinder, D. R., Peters, M. D., & Fiske, S.T. (1982). Affective and semantic components in political person perception. *Journal of Personality and Social Psychology*, 42, 619-630.
- Adentwi, K. I; Amartei, A. M., Brefo, C., & Sarfo, F. (2010). "Technology and gender equity: Students of rural and urban areas attitudes towards information and communication technology". Paper presented at the annual meeting of the AECT Convention. Retrieved February, 2012 from http://www.allacademic.com/meta/p430058_index.html.
- Ahl, D. H. (1976). Survey of public attitudes toward computers in society. In D.H. Ahl (Ed.), *The Best of Creative Computing* (Vol. 1). Morristown, NJ: Creative Computing Press.
- Al-Alwani, A. (2005). *Barriers to Integrating Information Technology in Saudi Arabia Science Education*. Unpublished doctoral dissertation, the University of Kansa, Kansa.
- Ajzen, I., & Driver, B. L. (1991). Prediction of leisure participation from behavioural, normative and control beliefs: An application of the theory of planned behaviour. *Leisure Sciences*, 13, 185-204.
- Ajzen, I., & Fishbein, M. (2005). The influence of attitudes on behaviour. In D. Albarracin., B.T Johnson., & M.P Zanna. (Eds). *The handbook of attitudes* (p. 173-221). Mahwah, NJ: Erlbaum.

- Ajzen, I., & Fishbein, M. (2000). Attitudes and attitude behaviour: Reasoned and automatic processes. In *European review of social psychology*. W. Stroebe, M. Hewstone, (Eds.). New York: Wiley: Chichester, England.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I., & Fishbein, M. (1975). *Belief, attitude and behaviour: An introduction to theory and research*. Addison Wesley, Phillipines.
- Ajzen, I., & Timko, C. (1986). Correspondence between health attitudes and behaviour. *Journal of Basic and Applied Social Psychology*, 7, 259- 276.
- Baker, J.W. (1985). Attitudes of Maine cooperative extension service personnel towards computerization. *Research in Rural Education*, 2, 159-162.
- Balanskat, A., Blamire, R., & Kefala, S. (2006). *The ICT Impact Report A review of studies of ICT impact on schools in Europe* (Electronic version). Retrieved November 2011, from <http://www.google.com.gh/url?accessibility%20of%20computers>.
- Bannon, H. S., & Marshall, J. C. (1986). *Educational Computing in Rural Versus Urban Settings* (Electronic Version). Retrieved February 2012, from <http://www.jrre.psu.edu/articles/v3,n3,p131-135,Marshall.pdf>.
- BECTA (2003). *What research says about ICT and whole school improvement*. UK: Becta. Accessed http://www.becta.org.uk/page_documents/research/wtrs_ws_improvement.pdf.
- Bem, D. J. (1970). *Beliefs, attitudes and human affairs*. Brooks/Cole, California, USA.

Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. *American Psychologist*, 54, 462-479.

Barone, M. J., & Miniard, P. W. (1997). The case for noncognitive determinants of attitude: A critique of Fishbein and Meddlestadt. *J. Consum. Psychology*, 6, 77-91.

Bingimlas, K. A. (2009). Barriers to the successful integration of ICT in teaching and learning environments: A Review of the Literature. *Eurasia Journal of Mathematics, Science & Technology Education*, 5, 3, 235-245.

Bovee, C., Voogt, J., & Meelissen, M. (2007). *Computer attitudes of primary and secondary students in South Africa*. Retrieved February 2012, from <http://www.mendeley.com/research/computer-attitudes-of-primary-and-secondary-students-in-south-africa>.

Brendl, C. M., & Markman, A. B. (2000). The influence of goals on value and choice. In D.L Medin (Ed.), *The psychology of learning and motivation*. San Diego: CA Academic.

Bransford, J., Brown, A. L., & Cocking, R. R. (Eds.). (2000). *How people learn: brain, mind, experience and school* (2nd ed.). Washington, D.C: National academy Press.

Broos, A. (2005). Gender and Communication Technologies (ICT) Anxiety: Male Self-Assurance and Female Hesitation (Electronic version). *Journal of Cyber Psychology and Behavior*, 8. Retrieved January 2012, from <http://www.liebertonline.com/doi/abs/10.1089/cpb.2005.8.21>.

Cambridge International Dictionary of English (1995). *Cambridge International Dictionary of English*. India: Thomson Press Ltd.

Chaiken, S., & Eagly, A. H. (1993). *The Psychology of Attitudes*, Fort Worth, TX: Harcourt Brace Jovanovich.

Christensen, R., & Knezek, G. (2008). Self-report measures and findings for information technology attitudes and competencies. In J. Voogt & G. Knezek (Eds.), *International handbook of information technology in primary and secondary education* (pp. 349–365). New York: Springer.

Christensen, R., & Knezek, G. (2001). *Equity and diversity in K–12 applications of information technology: KIDS project findings for 2000–2001*. Denton, TX: Institute for the Integration of Technology into Teaching and Learning (IITTL).

Critchfield, R. S., Krech, D., & Livson, N. (1958). *Elements of psychology*. USA California: Alfred Knopf Inc.

Concessional Loan agreement between Ghana and the Export-Import Bank of China (2007). *Loan for ICT Infrastructure* (Electronic Version). Retrieved January 2012, from <http://www.mofep.gov.gh/speech-china-24907.pdf>.

Condie, R., Collins, R., Munro, B., & Muir, D. (2005). *The Impact of ICT Initiatives in Scottish Schools: Phase 3 Final Report*. (Electronic Version). Retrieved January 2012, from <http://www.scotland.gov.uk/Resource/Doc/69582/0017582.pdf>.

Curriculum Research and Development Division (CRDD) (2007). *Syllabus for Information and Communications Technology for Junior High Schools*.

DeVellis, R. (2003). *Scale development: Theories and applications* (2nd ed.) Newbury Park, CA: Sage Publications.

Droba, D. D. (1933). "The nature of attitude." *Journal of Social Psychology*, 4, 444 - 463.

Empirica, G. K. (2006). *Benchmarking Access and Use of ICT in European Schools Empirica*. Retrieved January 1, 2010, from http://ec.europa.eu/information_society/eeurope/i2010/docs/studies/final_report_3.pdf.

European Commission Report (2001). *Information and communication technologies in development: the role of ICTs in EC development policy*. (Electronic version). Retrieved December 2011, from europa.eu.int/eur-lex/en/com/cnc/2001/com2001_0770en01.pdf.

Fraenkel, J. R., & Wallen, N. E. (2000). *How to Design and Evaluate Research in Education* (4th ed.). U.S.A.: McGraw-Hill Companies Inc.

Fančovičová, J., & Prokop, P. (2008). Students' Attitudes Toward Computer Use in Slovakia. *Eurasia Journal of Mathematics, Science & Technology Education*, 4(3), 255-262.

Gay, L. R. (1992). *Educational research: competencies for analysis and application* (4th ed.). New York, NY: Macmillan Publishing Company.

Grimus, M. (2000). *ICT and multimedia in the primary school*. Paper presented (August, 21-25) at the 16th conference on educational uses of information and communication technologies, Beijing, China.

Griswold, P. A. (1982). Differences between education and business majors in their attitudes about computers. *AEDS Journal*, 18, 131-138.

Haddock, G., & Zanna, M. P. (1993). Predicting Prejudicial Attitudes: The Importance of Affect, Cognition, And The Feeling-Belief Dimension. *Advances in Consumer Research*, 20, 315-318.

Haugtvedt, C. P. (1997). Beyond fact or artefact: An assessment of Fishbein and Middlestadt's perspectives on attitude change processes. *J. Consum. Psychology* 6, 99-106.

Healy, P., & Schilmoeller, G. L. (1985). Parent attitudes toward computer use by young children. *Research in Rural Education*, 2, 135-140.

Hofstee, G., Janssen., H. J. W., & Verplanken, B. (1998). Effects of introspecting about reasons: Inferring attitudes from accessible thoughts. *European Journal of Social Psychology*, 28, 23-35.

Hrubes, D., Ajzen, I., & Daigle, J. (2001). Predicting hunting intentions and behaviour: An application of the theory of planned behaviour. *Leisure Sciences*, 23, 165-178.

Jackson, C. (2009). *Information and communications technology and social exclusion*. Retrieved January 2012, from www.student.city.ac.uk/~dt758/PrIssues Group Course work.

Kaino, L. M., & Salani, E. (2004). Students' gender attitudes towards the use of calculators in mathematics instruction. In Hoines, M.J. & Fuglestad, A.B. (Eds.). *Proceedings of the International Group for the Psychology of Mathematics Education (PME)*, 3, 113-120.

Kaino, L. M. (2005). *The use of Computers in Learning: A case Study of selected Botswana Junior Secondary School Students' Gender Attitudes*. Retrieved January 2012, from <http://www.hbcse.tifr.res.in/episteme/episteme-2/e-proceedings/kaino>.

Koehler, M. S., & Meyer, M. R. (1990). Internal influence on gender differences in mathematics. In Fennema, E., & Leder, G. C. (Eds.). *Mathematics and Gender*, (pp. 60- 95), NewYork; Teachers' College Press.

Korte, W. B., & Husing, T. (2007). Benchmarking access and use of ICT in European schools 2006: Results from Head Teacher and A Class Teacher Surveys in 27 European Countries. *eLearning Papers*, 2(1), 1- 6.

Krueger, E. T., & Reckless, W. C. (1931). *Social Psychology*. New York: Longmans Green.

Kuln, G. (1980). Research on mathematics attitude. In R.J. Shumway (Ed.), *Research in mathematics education*, (pp. 356-385). N.V.T.M. Virginia.

Liao, Y. (2003). Attitudes of Teachers Toward Information Technology in Taiwan. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2003* (p. 1197). Chesapeake, VA: AACE.

Lindsey, S., Schooler, T. Y., & Wilson, T. D. (2000). A model of dual attitudes. *Psychological Review*. 107, 101-26.

- Looker, D., & Thiessen, V. (2003). *The digital divide in Canadian schools: factors affecting student access to and use of information technology* (Electronic version). Retrieved February 2012, from <http://publications.gc.ca/Collection/Statcan/81-597-X/81-597-XIE.pdf>.
- Loyd, B. H., & Gressard, C. (1984). The effects of sex, age and computer experience on computer attitudes. *AEDS Journal*, 18, 67-77.
- Lumsden, B., & Norris, C.M. (1984). Functional distance and the attitudes of educators toward computers. *T.H.E. Technological Horizons in Educational Journal*, 11, 129-132.
- Marshall, J. C., & Bannon, S. H. (1986). Educational Computing in Rural Versus Urban Settings. *Research in Rural Education*, 3, 3.
- Martínez-Friás, J. (2003). The importance of ICTs for developing countries: *Interdisciplinary Science Reviews*, 28, 1, 13.
- Martorella, P. H. (1985). *Elementary Social Studies: Developing reflective, Competent and concerned citizens*. Boston: Little, Brown.
- Michayahu, A. K. (2010). *Educational Reforms In Ghana, 1974-2007*. Retrieved November 8, 2011, from <http://ghanaweb.com/GhanaHomePage/article>.
- Moonen, B. (2001). *Teacher learning in inservice networks on Internet use in secondary education* (Doctoral thesis, University of Twente [NL]). ISBN 90-365-1601-3.
- Morales, C. (2006). *Cross-cultural validation of the will, skill, tool model of technology integration*. Unpublished doctoral dissertation, University of North Texas, Denton, TX.

Pelgrum, W. J. (2001). Obstacles to the integration of ICT in education: results from a worldwide educational assessment. *Computers & Education*, 37, 163-178.

Rashid, M., & Riaz, A. (2003). *Executive Student's Attitude Towards Technological change a case study of Allama Iqbal Open University*. Retrieved November 10, 2011, from <http://www.google.com.gh/url?sa=t&rct=j&q=Attitude%20toward>.

Sicilia, C. (2005). *The Challenges and Benefits to Teachers' Practices in Constructivist Learning Environments Supported by Technology*. Unpublished master's thesis, McGill University, Montreal.

Siragusa, L., & Dixon, K. (2008). Planned behaviour: Student attitudes towards the use of ICT interactions in higher education. In *Hello! Where are you in the landscape of educational technology?* Proceedings ascilite Melbourne 2008. Retrieved June 3, 2011, from <http://www.ascilite.org.au/conferences/melbourne08/procs/siragusa.pdf>.

Stevens, D. I. (1982). Educators' perceptions of computers in education: 1979 and 1981. *AEDS Journal*, 16, 1-15.

Tinio, V. L. (2003). *ICT in Education*. Retrieve June 12, 2011, from <http://www.eprimers.org>

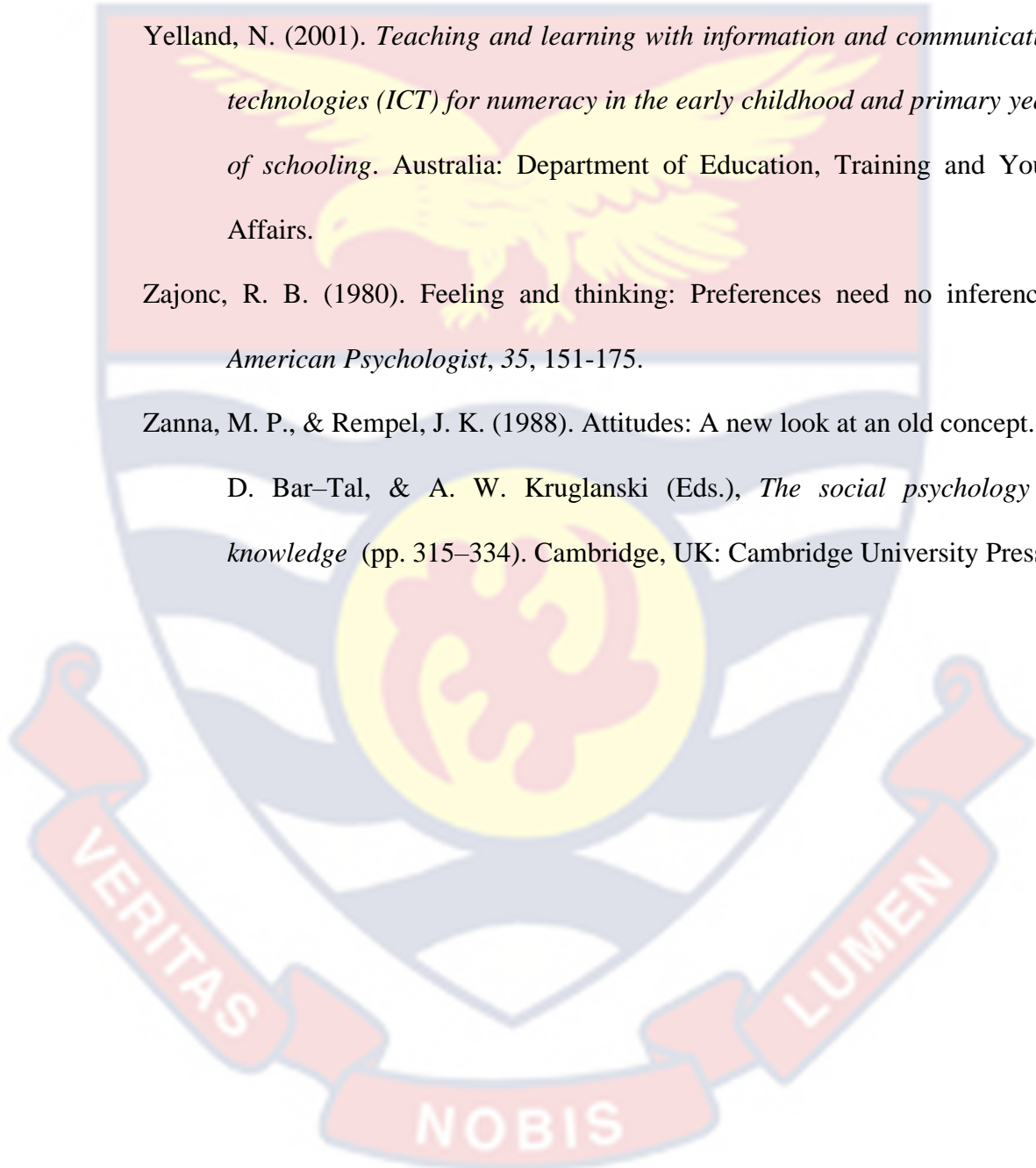
West African Examinations Council (2011). Basic Education Certificate Examination (Ghana): Christ Church Anglican Junior High, Cape Coast.

Woodrow, J. E. (1992). The influence of programming training on the computer literacy and attitudes of pre-service teachers. *Journal of Research on Computing in Education*, 25(2), 200–218.

Yelland, N. (2001). *Teaching and learning with information and communication technologies (ICT) for numeracy in the early childhood and primary years of schooling*. Australia: Department of Education, Training and Youth Affairs.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, 35, 151-175.

Zanna, M. P., & Rempel, J. K. (1988). Attitudes: A new look at an old concept. In D. Bar-Tal, & A. W. Kruglanski (Eds.), *The social psychology of knowledge* (pp. 315–334). Cambridge, UK: Cambridge University Press.





APPENDICES

APPENDIX A

Questionnaire for JHS Pupils (PAC)

This questionnaire is derived from well-validated portions of several attitudinal surveys that have been used in the past. The researcher will use your responses to help develop a profile of how pupils view technology. Please complete all items even if you feel that some are redundant. This should require about 15 minutes of your time. Usually it is best to respond with your first impression, without giving a question much thought. Your answers will remain confidential.

SECTION A

Biographical Data

Tick the option that is appropriate to you [√]

1. Type of school

Public []

Private []

2. Location of school

Rural []

Urban []

3. Sex

Male []

Female []

4. Which of the following age groups do you belong to?

12-13years []

14-15years []

16-18years []

19 and above []

SECTION B

Attitude towards the study of ICT at the JHS

Instructions: Select one level of agreement for each statement to indicate how you feel.

SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree

No.	ITEM	SD	D	A	SA
5	I want to learn a lot about computers.				
6	The challenges of learning about computers are exciting.				
7	I like learning on a computer.				
8	I can learn many things when I use a computer.				
9	I get bored when I think of trying to use a computer.				
10	Working with a computer makes me feel tense and uncomfortable.				
11	Working with a computer makes me nervous.				
12	Computers intimidate me.				
13	Using a computer is very frustrating.				
14	If I had a computer at my disposal, I would try to get rid of it				
15	Studying about computers is a waste of time.				

16	Computers are changing the world too rapidly.				
17	I am afraid that if I begin to use computers I will become dependent upon them.				

Instructions: Choose one location between each adjective pair to indicate how you feel about computers.

No.	Computers are:	1	2	3	4	5	6	7	
18.	unpleasant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pleasant
19.	suffocating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	fresh
20.	dull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	exciting
21.	unlikable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	likeable
22.	uncomfortable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	comfortable

SECTION C

Awareness of computer usage for future job opportunities

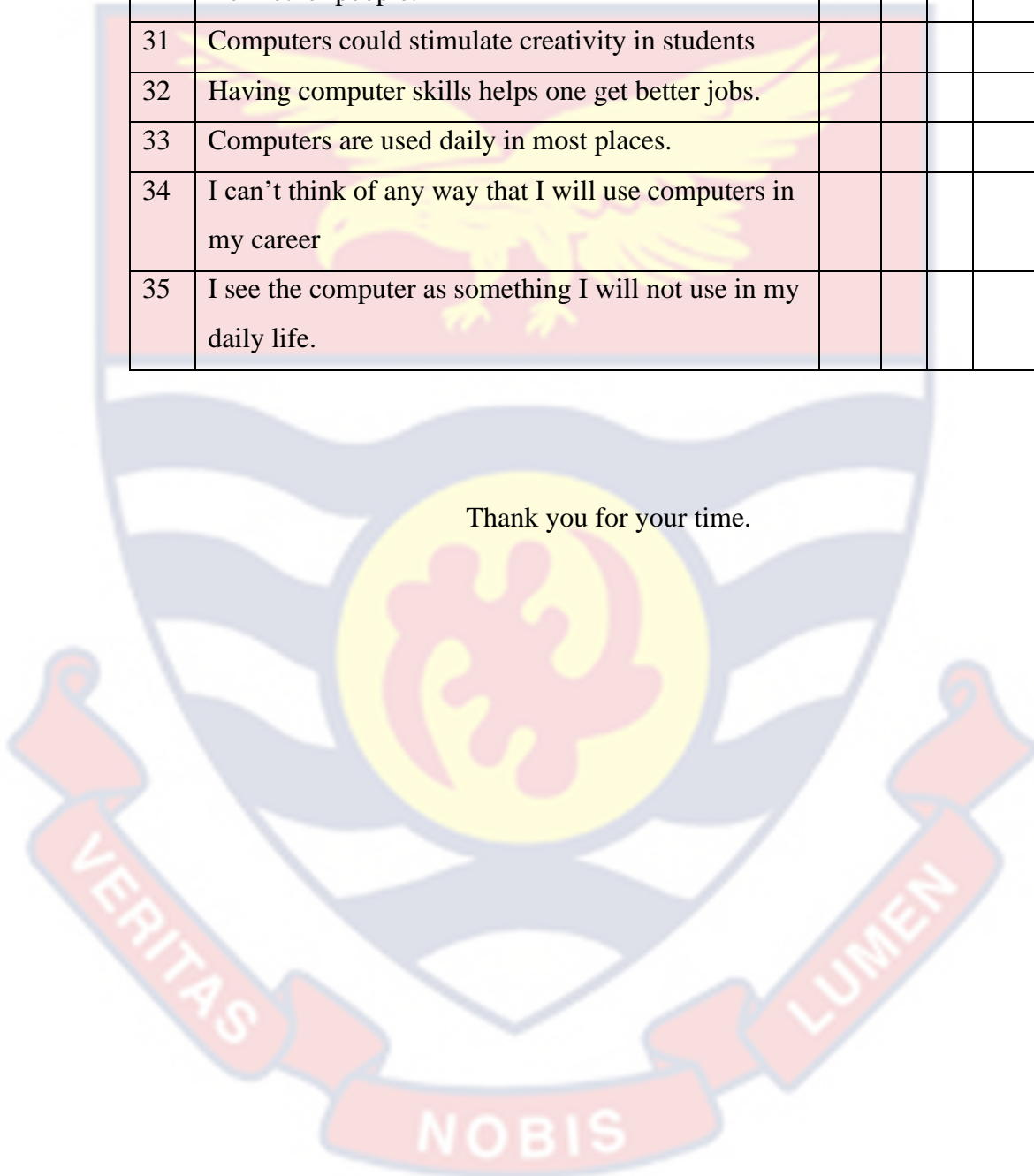
Instructions: Select one level of agreement for each statement to indicate how you feel.

SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree

No	ITEM	SD	D	A	SA
23	The use of E-mail helps to learn more.				
24	The use of E-mail increases motivation for class.				
25	The use of E-mail helps provide a better learning experience.				
26	It is fun to figure out how computers work.				
27	Students should understand the role computers play in society.				

28	Computers could increase productivity.				
29	Computers have the potential to control our lives.				
30	Working with computers makes me feel isolated from other people.				
31	Computers could stimulate creativity in students				
32	Having computer skills helps one get better jobs.				
33	Computers are used daily in most places.				
34	I can't think of any way that I will use computers in my career				
35	I see the computer as something I will not use in my daily life.				

Thank you for your time.



APPENDIX B

OBSERVATION GUIDE

The researcher used the criteria below as a guide in the observation process. The observation of pupils was done during their ICT lessons to ascertain the reaction of pupils during lessons in their classrooms.

Name of observed school:.....

Date/Time of observation:.....

Number on Roll:.....

Period of observation(s):.....

The following are the criteria for the observation:

1. Do pupils look lively during the lesson? State some of the indicator(s)?

.....
.....

2. Are pupils keen to ask questions?

.....

3. Do the sampled exercise books of pupils indicate that they do exercises regularly?

.....

4. Do pupils' facial expressions demonstrate frustration and wanting the teacher to leave even if the lesson is not over?

.....
.....

5. Do boys seem to be enjoying the lesson? State peculiar indication(s).

.....
.....

6. Do girls seem to be enjoying the lesson? State peculiar indication(s)

.....

7. Does the teacher involve him/her self in the lesson?

.....

8. Find out from the teacher about the general attitude of pupils concerning the study of ICT in the school.....

9. Find out from the teacher about the availability of computer(s) in the school

.....

